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ABSTRACT

An Ecology Unit developed by fourth and fifth grade teachers in Pennsylvania is presented in this guide. It is composed of two sections. The first is divided into six levels based on reading abilities. Each level is further subdivided into several phases representing topics studied in the seven-week unit: Introduction to Ecology, Cities, Field and Forest, Animals, Air Pollution, Water Pollution, and Culminating Activities. Within each phase, activities are suggested which emphasize language arts but incorporate social studies and science concepts as well. Materials needed to complete the activities are noted. Section Two offers related activities which students may choose for group work and supplement those of Section One. Six related segments--Cities, Field and Forest, Animals, Air Pollution, Still Water (pond) Pollution, and Running Water (stream) Pollution--are used to suggest a variety of concepts, multimedia materials, and learning activities. This work was prepared under an ESEA Title III contract. (BL)

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State College, Penn.
Dr. Robt Campbell

ED 081599

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ENVIRONMENTAL EDUCATION

State College Area School District

ESEA III

SE 016 603

ENVIRONMENTAL EDUCATION

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ESEA III

The responses to early environmental education units, that were distributed by my office, were very positive. Therefore, I am continuing to have units printed and distributed to our staff.

This unit is one that was developed last year by the 4th and 5th grade teachers of cluster E Park Forest Elementary. In this unit they do a good job of providing for both the reading and interest difference found in their students.

I feel that this unit need not be adopted in its entireity to be of use to the teacher. Any phase of this unit could be developed into a unit by itself. The resource list at the end of the unit alone would be worth printing and distributing. Please accept this unit as a sample unit and borrow from it where you are able.

Gary A. Owen
Environmental Education Coordinator

AN ECOLOGY UNIT

Park Forest Elementary School

Elizabeth Yeisley	Grade 4
Victory Cooper	Grade 4
Diane Oyler	Grade 5
Jean Helleberg	Grade 5
Miriam Whitney	Grade 5
Donna Shenk	Grade 5

Student Teachers
Debbie Lillibridge
Bernard Shockowitz

Cluster E of Park Forest Elementary School cooperated in a seven week study of Ecology. The Cluster was made up of 150 Fourth and Fifth Grade students with 6 teachers and 2 student teachers.

The unit activities were divided into a Language Arts Section and a Related Activities Section.

Language Arts groups were determined by the Reading level of all the students.

Level 1 - Reading 2 - 3 grade
Level 2 - Reading 4th grade
Level 3 - Reading 5th grade
Level 4 - Reading 5+ grade
Level 5 - Reading 6 - 7 grade
Level 6 - Reading 8+ grade

Language Arts classes incorporated Social Studies and Science concepts as well as the usual language arts skills. (Numbers listed in the activities refer to the 10 Basic Reading objectives.)

The seven weeks were divided into the following weekly phases:

Introduction to Ecology
The City
Field and Forest
Animals
Air Pollution
Water Pollution
Culmination

The daily Related Activities period was divided into six interest groups: the City, Field and Forest, Animals, Air Pollution, Still water (pond) pollution, Running water (stream) pollution. Each child chose an activity to participate in for three weeks duration and then changed to another chosen activity for the next three weeks.

Cluster activities involved joint music classes; constructing an Ecology flag and incorporating it and the Ecology pledge into morning opening exercises; constructing the giant trash monster; sharing of Related Activities projects; and the last week culminating activities.

. . . . . .

Can you imaging what a community will be like in the 2500? This was the suggested theme of a culminating activity following a Unit on Ecology. The children were asked to use their imagination and creative ability to transform our cluster into specific aspects of ideal community living. The children selected six topics: Restaurant, Hospital, Grocery Store, Recreation and Entertainment, Government and Homes.

Ecology Concepts

1. Man needs air, food, clothing and shelter for survival.
2. Man needs earth resources to provide air, food, clothing and shelter.
3. Man is a part of the earth's life cycle.
4. Man has thoughtlessly used his environment to meet his basic needs.
5. The earth's resources are limited.
6. Man plays a variety of roles in life.
7. Being better informed about our resources can make us better ecologists.
8. Man is threatened by environmental conditions and must change his way of life.
9. Each person has a responsibility to conserve our earth for the future as well as the present.
10. Man is capable of making a better world to live in.

Language Arts Skills

1. Speaking
2. Listening
3. Silent Reading
4. Oral Reading
5. Comprehension
6. Word Analysis
7. Word Recognition
8. Writing
9. Research
10. Self Selection

Ecology Unit

Materials

Level I
Phase I (1 week) Introduction

I. Instructional Book Strand
Using the following books the students will be divided into six groups with 5 group preparations: Reader's Digest Skill Builders 2^2 Reader's Digest Skill Builders 3^1, Reader's Digest Skill Builders 3^2, Reader's Digest Skill Builder 4^1, Reader's Digest Skill Builder 4^2, First Follow Nature.

A. Language Arts Activities
1. Reading
a. Group 1
1. Reader's Digest 4^2, p. 35-41 "Goodbye Old Sam"
a. The students will read the story silently. (3)
b. The students will complete a worksheet on word meanings and skimming for details. (5,7)
c. The students will read the story orally to the teacher or aide. (4,6)

6 copies Reader's Digest Skill Builder 4^2 "Goodbye Old Sam", p.35-41 Author Paul Cranston, Publisher Reader's Digest Services Inc.

2. Reader's Digest 4^2 p. 42-48 "New Adventures Underwater"
a. The students will read the story silently. (3)
b. The students will complete worksheets on fitting subtitles to story parts and remembering important facts. (5)
c. The student will read the story orally to the teacher or aide. (4,6)
d. The student will draw a picture of a skin-diver and label his equipment.

6 copies Reader's Digest Skill Builder 4^2 "New Adventures Underwater", p.42-48, author-George Kent, Publisher-Reader's Digest Services

Worksheet

b. Group 2
1. Reader's Digest 4^1, "Nature's Super Senses", p.140-144.
a. The students will read the story silently. (3)
b. The student will complete a worksheet dealing with comprehension of important facts and choosing the right meanings. (5,6)
c. The students will read the story orally to the teacher or aide. (4,6)

6 copies Reader's Digest Skillbuilder 4^1 "Natures Super Senses" p.140-144 Author Alan Devoe Publisher Reader's Digest Services Inc.

2. Reader's Digest 4^1 "Manners in Animal Land" p. 111-115
a. The students will read the story silently. (3)
b. The student will complete a worksheet choosing the main ideas of the story, getting the right meaning and giving the correct reason. (5,6,7)

Worksheet

6 copies Reader's Digest Skillbuilders 4^1 "Manners in Animal Land" p. 111-115

Ecology Unit (continued)

Materials

c. The students shall read the story orally to a teacher or an aide. (4,6)
d. The students will discuss why good manners apply to animals as well as people. (1)

Author Archibals Rutledge
Publisher: Reader's Digest Services

c. Group 3

1. Reader's Digest 3^2 "New Worlds Around Home" p. 95-100
   a. The students will read the story silently. (3)
   b. The student will complete worksheet in comprehension of important facts. (5)
   c. Discuss why or why not the title fits the story. (5)
   d. Read the story orally to the teacher or an aide. (4,6,7)

5 copies Reader's Digest "New Worlds Around Home" p. 95-100 Publisher Reader's Digest Services Inc.

Worksheet

2. Reader's Digest 3^2 "Two Smart Dogs" p. 106-112.
   a. The students will read the story silently. (3)
   b. The student will complete a worksheet which includes facts, word meanings, and selecting the best title. (5,6,7)
   c. The student will read the story orally to the teacher or aide. (4,6,7)

5 copies Reader's Digest "Two Smart Dogs p. 106-112 Publisher Reader's Digest Services Inc.

d. Group 4

1. Reader's Digest 3^1 "Rain Proof" pp. 63-70.
   a. The students will read the story silently. (3)
   b. The student will complete worksheet dealing with remembering important facts and find the reason why. (5)
   c. The student will read orally. (4,6,7)

1 copy Reader's Digest "Rain Proof" p.63-70 Publisher Reader's Digest Services Inc.

2. Reader's Digest 3^1 "Mr. Tricks Gets Away" p. 75-79.
   a. The student will read the story silently. (3)
   b. The student will complete a worksheet emphasing remembering facts, word meanings and characterization. (5,6,7)
   c. The student will read the story orally to the teacher or aide. (4,6,7)

1 copy Reader's Digest Skillbuilders 3^1 "Mr. Tricks Gets Away" Publisher: Reader's Digest Services Inc.

e. Group 5

1. Reader's Digest 2^2 "Men Against Whales" p.119
   a. The student will read the story silently. (3)
   b. The student will complete a worksheet dealing with compound words, making sentences and the use of the correct verb form. (6)

1 copy Reader's Digest "Men Against Whales" p. 119

worksheet

Ecology Unit (continued	Materials
c. The student will read the story orally to the teacher. (4,6,7)	
d. The student will find pictures of large animals that live in the sea and will write 2 sentences about each animal. (8)	magazines to be cut up.
2. Spelling Center The class will be divided into 2 groups each working on separate basic skills and word lists found in Book 3. In addition to the basic list, 6 words relating to the unit have been added. (flowers, pollution, animals, evergreen, leisure and nature)	Basic Spelling 3 Authors: Kottmeyer and Claus Publisher: Webster Division McGraw-Hill Book Co.
a. The student will make a copy of their words to study.	
b. The student will write each word five times in cursive.	
c. The student will complete exercises using their words.	Worksheet
d. The students will look up the meanings of the spelling words.	
e. The students will be tested on the words at the end of the week.	
3. Language Center	
a. The students will write sentences putting in capital letters where they have been left out.	Worksheet
b. The students will give the plural form of words from our unit. Ex. fox-foxes.	Worksheet
c. The students will complete a worksheet dealing with syllabification, writing titles correctly and the use of capitals and periods.	Worksheet
B. Science Activities	
1. The student will view the film "What is ecology"?	Film-"What is ecology"
2. The student will discuss how man is effected by his environment.	
3. The student will illustrate one or several ways man can preserve his environment.	Manilla paper
C. Social Studies Activities	
1. The student will discuss the ways in shich our surroundings effect the way we feel.	
2. After viewing a picture of a waterfall the student will try to use one word to describe his feelings.	
3. The student will read and discuss p. 7-9 First Follow Nature.	17 copies First Follow Nature, Scholastic Book Services: New York
4. The students will accompany the teacher on a short walk through the woods noting the beauties of nature.	
5. The students will listen to the record "Just a few floating wrappers of chewing gum".	Record "Just a few floating wrappers of chewing gum".

Level I

Phase II (1 week) Cities

I. Instructional Book Strand
Using the following books the students will be divided into five groups with 4 group preparations: Reader's Digest Skill Builder 3^1, Reader's Digest Skill Builder 4^1, Open Highways 4, Ventures.

A. Language Arts
1. Reading
a. Group 1
1. Ventures "Henry and Ribs" — 6 copies Ventures "Henry and Ribs" Publisher
a. The students will read the story silently. (3,6,7)
b. The students will be asked to recall important facts about the story.(5)
c. The students will read the story orally to a teacher or aide. (4,6,7)
2. Ventures "Jerry and the Dragon" (Divide into 2 parts) — 6 copies Ventures "Jerry and the Dragon" Publisher:
a. The students will read the story silently.
b. The students will (3,6,7) be asked to skim for details. (5)
c. The students will read the story orally to a teacher or aide. (4,6,7)
d. The student will tell why or why not he would like to live in a city. (1,5)

b. Group II
1. Open Highways 4 "The Shoeshine Boy" — 6 copies Open Highways "The Shoeshine Boy" Author Publisher:
a. The student will discuss the kinds of work he or she has done during the summer.(1)
b. The student will read the story silently. (3,6,7)
c. The student will relate the sequence of events in the story. (5)
d. The student will read the story orally. (4,6,7)
2. Ventures "Henry and Ribs" — 6 copies Ventures "Henry and Ribs" Author Publisher
a. The students will read the story silently. (3,6,7)
b. The student will be asked to recall important facts about the story.(5)
c. The student will read the story orally to the teacher or an aide. (4,6,7)
3. Reader's Digest 4^1 "Don't Look at Your Feet" P. 86-92 — Reader's Digest 4^1 "Don't Look at Your Feet" p. 86-92 Author: Lowell Thomas Publisher: Reader's Digest Services Inc.
a. The students will tell about experiences they have had being up at great buildings.(1)
b. The students will read the story silently. (3,6,7)
c. The students will read the story orally. (4,6,7)
d. The students will find out the name and numbers of stories of the tallest building in the world. (9)

c. Group III

Materials

1. Open Highways 4 "The Shoeshine Boy"p.9-17
   a. The students will discuss the kinds of jobs they have done during the summer. (1)
   b. The students will read the story silently.(3,6,7)
   c. The students will recall the sequence of important events in the story. (5)
   d. The students will read the story orally to the teacher. (4,6,7)

6 copies
Open Highway's 4 "The Shoeshine Boy"
Author
Publisher

2. Open Highways 4 "The Story of Mulberry Bend"p.25-34
   a. The students will discuss the advantages and disadvantages of living in a city. (1)
   b. The students will read the story silently. (3,6,7)
   c. The students will give descriptions of the main characters. (5)
   d. The students will read the story orally. (4,6,7)

Open Highways 4 "The Story of Mulberry Bend"
Author
Publisher

3. Reader's Digest 4' "Don't Look at Your Feet" p.86-92
   a. The students will relate their experiences of being in high places to the group. (1)
   b. The students will read the story silently. (3,6,7)
   c. The students will complete exercises on choosing the right meaning and getting the main ideas. (5,7)
   d. The students will read the story orally. (4,6,7)
   e. The students will find out the name and number of stories of the tallest building in the world.(9)

Reader's Digest 4' Don't Look at Your Feet" p. 86-92
Author: Lowell Thomas
Publisher: Reader's Digest Services Inc.

d. Group IV

1. Reader's Digest 3^1 p. 122-125
"Dollars and Sense"
   a. Ask group-How many get an allowance? Discuss the kinds of things they do with it. (1)
   b. The students will read the story silently. (3,6,7)
   c. After discussion of the story the students will read the story to the teacher. (1,4,6,7)
   d. The student will complete exercises on remembering important facts, homonyms, and opposites.(5,6,7)

2. Reader's Digest 3^1 p. 84
"I Like Mexicans"
   a. The students will discuss and list on a chart the different nationalities which live in the city.(1)
   b. The students will read the story silently.(3,6,7)
   c. After discussing the story the students will read the story orally. (1,4,6,7)

3. Reader's Digest 3^2 p. 32-38
"Wonder Kinds-Baseball Heroes"
   a. The students will discuss the different kinds of games that children in the city play. (1)
   b. The students will read the story silently. (3,6,7)
   c. The students will complete exercises dealing with remembering of important facts of the story and word meanings. (5,6,7)
   d. The students will read the story orally. (4,6,7)

Materials

2 copies Reader's Digest "Dollars and Sense" p.122-125 Publisher Reader's Digest Services,Inc. worksheet

2 copies Reader's Digest Skillbuilder 3^1 p.84. "I Like Mexicans" Publisher: Reader's Digest Services Inc.

2 copies Reader's Digest Skillbuilder 3^2 p.32-38 "Wonder Kids-Baseball Heroes Publisher: Reader's Digest Services Inc.

worksheet

2. Spelling Center-The class will be divided into 2 groups each working on separate basic skills and word lists found in Book 3. In addition to the basic lists, 6 words relating to the city phase of the unit have been added. The unit words were: sidewalk, neighbor, traffic, skyscraper,buildings and streetlight.
   a. The students will be introduced to their word lists. The spelling skill for each group will be emphasized.
   b. The students will complete exercises using both the words from Book 3 and the unit words.
   c. The students will look up the pronunciations of their unit words.
   d. The students will unscramble the letters of a list of their spelling words.
   e. The students will be tested on their words at the end of the week.

Basic Spelling 3 Authors: Kottmeyer, and Claus Publisher: Webster Division McGraw Hill Book Co. worksheet

ditto

3. English
   1. The students will complete exercises using saw/seen and come/came correctly.
   2. The students will correctly capitalize the names of cities and streets.

ditto

ditto

	Materials
B. Social Studies and Science Activities	
1. The students will view the filmstrip "Here is the City."	filmstrip "Here is the City"
2. The students will list the advantages and disadvantages of living in a city.	chart paper
3. The students will read p. 10-12 First Follow Nature	17 copies First Follow Nature Scholastic Book Services: New York
4. Using contrasting photographs of the city. The students will discuss the advantages and disadvantages of each.	pictures which accompanies First Follow Nature Scholastic Book Services New York
5. The students will listen to the song "Five Fingers."	record-which is included with First Follow Nature. Scholastic Book Services, New York

Ecology Unit

Materials

Level I
Phase III (1 Week) Field and Forest

1. Instructional Book Strand
Using the following books the students will be divided into five groups with 4 group preparations:
Reader's Digest Skill Builder 4^2
Reader's Digest Skill Builder 4^1
Reader's Digest Skill Builder 3^2
Reader's Digest Skill Builder 3^1
First Follow Nature

A. Language Arts Activities
1. Reading
a. Group 1
1. Reader's Digest 4^2 p. 48-52
"Animals Have Their Fun"
a. The student will read the story silently.(3)
b. The student will do exercises on remembering details, getting word meanings, sequence of events.(5,7)
c. The student will read the story orally.(4,6)
d. The student will write or tell about the way a pet animal plays. (1,8)

6 copies Reader's Digest Skill Builder 4^2 "Animals Have their Fun" p.48-52 Author Alan Devoe Publisher: Reader's Digest Services Inc.

worksheet

2. Reader's Digest 4^2 p. 92-95
"The Insect Zoo"
a. The student will read the story orally.(4,6)
b. The student will complete exercises dealing with finding the main ideas, skimming the story to find facts, filling in an outline, and identifying insects.(5,7)
c. The student will read the story orally.(4,6,7)

6 copies Reader's Digest Skill Builder 4^2 "The Insect Zoo" p.92-95

worksheet

3. Reader's Digest 4^2 p. 125-128
"Fun with an Ant House"
a. Discussion-How smart do you think an ant is?(1)
b. Read story silently. (3)
c. Do exercises involving summing up the story, choosing the right meaning.(7,5)
d. The students may wish to build and maintain an ant farm.
e. Read the story orally. (5,6,7)

6 copies Reader's Digest Skill Builders 4^2 p. 125-128 "Fun with an Ant House" Author Donald Peattie Publisher Reader's Digest Services

worksheet
ant farm

Ecology Unit (continued)	Materials
b. Group II	
1. Reader's Digest 4^1 p. 94 "Balsa Nature Wonder Wood" a. Examine a piece of balsa wood. Discuss its characteristics. Ask-What kinds of things could be made from this wood?(1) b. Read the story silently. (3) c. Complete exercises dealing with remembering important facts, word meanings, and compound words. (5,6,7) d. Read the story orally to the teacher or an aide. (6,7,4)	6 copies Reader's Digest Skill Builder 4^1 p. 94 "Balsa Natures Wonder Wood" Author: Clayton Slawter Publisher: Reader's Digest Services piece of balsa wood (model airplane) worksheet
2. Reader's Digest 4^1 p. 132 "The Deer Swallower" a. Look at pictures of different kinds of snakes. Discuss how large a snake would have to be to swallow a snake.(1) b. The student will read the story silently.(3) c. The students may write or tell an interesting adventure suggested by this story.	6 copies Reader's Digest Skill Builder 4^1 p. 132 "The Deer Swallower" Author:Willard Price Publisher: Reader's Digest Services Inc. pictures of snakes worksheet
3. Reader's Digest 4^2 p. 48-52 "Animals Have Their Fun" a. The student will read the story silently.(3) b. The student will do exercises on remembering details, getting word meanings and sequence of events. (5,6,7) c. The student will read the story orally.(4,6,7) d. The student will write or tell about the way a pet animal plays. (1,8)	6 copies Reader's Digest Skill Builder 4^2 "Animals Have their Fun" p. 48-52 Author: Alan Devoe Publisher: Reader's Digest Services Inc.

Ecology Unit (continued)

Materials

c. Group 3

1. Reader's Digest 3^2 p. 87-92
"Forest Kings"

6 copies
Reader's Digest
Skill Builder
3^2 p. 87-92
Author -Publisher
Reader's Digest
Services Inc.

a. The student will discuss ways in which trees are helpful. (1)
b. The student will read the story silently. (3,6,7)
c. The student will complete exercises on remembering important facts. (5,6,7)
d. The student will read the story orally. (4,6,7)

worksheet

2. Reader's Digest 3^2 p. 122 "The Wise Old Owl"

Reader's Digest
Skill Builder
3^2 p. 122
"The Wise Old
Owl"
Reader's Digest
Services, Inc.

a. The students will discuss times when they have seen an animal do something very smart. (1)
b. The student will read the story silently. (3)
c. The student will complete exercises on recognizing paragraphs and word meaning. (5,6,7)
d. The student will read the story orally. (4,6,7)

worksheet

3. Reader's Digest 4^1 p. 64
"The Riddle of Rockey Gorge"

Reader's Digest
Skill Builder
4^1 p. 64
"The Riddle
of Rocky Gorge"
Author Alton
Hall Backington
and Anthony
Abbot
Publisher:
Reader's Digest
Services Inc.

a. The student will read the story silently. (3)
b. The student will complete a worksheet dealing with remembering facts and word meanings. (5,6,7)

d. Group 4

1. Reader's Digest 3^1 p. 91-98
"The Secret Path"

2 copies
Reader's Digest
Skillbuilder 3^1
p. 91-98 "The
Secret Path"
Publisher -
Reader's Digest
Book Services
worksheet

a. The student will read the story silently (3,6,7)
b. The student will complete a worksheet dealing with remembering important facts from the story and compound words.(5,6,7)
c. The student will draw pictures of animals making them look like people.

Ecology Unit (continued)

Materials

2. Reader's Digest 3^1 p. 105-111 "Harvesting Wild Rice"
   1. The student will read the story silently. (3,6,7)
   2. The student will complete exercises on remembering important facts, homonyms and word meanings. (5,6,7)
   3. After discussing the story, the student will read the story orally. (4,6,7)

   2 copies Reader's Digest Skillbuilder 3^1 p. 105-111 "Harvesting Wild Rice" Publisher - Reader's Digest Book Services

   Ditto

3. Reader's Digest 3^1 p. 99-102 "Goofy Gobblers"
   a. The students will relate to the group experiences in which they knew of a pet doing something crazy. (1)
   b. The students will read the story silently. (3,6,7)
   c. After discussing the story the student will read the story orally to the teacher. (4,6,7)

   2 copies Reader's Digest Skillbuilder's 3^1 p. 99-102 "Goofy Gobblers" Publisher- Reader's Digest Book Services

2. Spelling Center - The class will be divided into 2 groups each working on separate basic skills and word lists found in Book 3. In addition to the basic lists 6 words relating to the field and forest phase of the unit have been added.
   a. The students will be introduced to their word lists. The spelling skill for each group will be emphasized.
   b. The students will complete exercises using both words from Book 3 and the unit words.
   c. The students will write a short story using at least 12 of their words.
   d. The students will form a picture by using only their spelling words. Each word should be used at least 3 times.
   e. The students will be tested on their words at the end of the week.

   Basic Spelling 3 Author: Kottmeyer and Claus. Publisher: Webster Division McGraw Hill Book Co. Ditto

3. English
   a. The students will complete exercises on capitalization.
   b. The students will select one of the following titles and write and illustrate a short story.
      1. My Friend the Chipmunk
      2. My Life as a Tree
      3. Three Baby Robins
      4. Just Out My Window
      5. A Broken Wing
      6. My Favorite Pet
      7. A Walk Through the Woods

   Ditto

Ecology Unit (continued)

Materials

B. Science and Social Studies
Activities

1. The students will accompany the teacher on a short walk through the woods.
2. The students will list all of the different kinds of living and non-living things are in a woods. — chart paper
3. The teacher will read the story "Trees Alone Do Not Make a Forest." Transparencies can be made to accompany the story. — Sounds of Mystery "Trees Alone Do Not Make a Forest" Publisher:Holt Rinehart & Winston
4. The students will view the filmstrip-"Forests" — filmstrip: "Forests"

Level 1

Phase 4 (1 week) - Animals

I. Instructional Book Strand

Using the following books the students will be divided into six groups with three group preparations: Reader's Digest Skill Builders 4^2 , Ventures, Reader's Digest Skill Builders 4^1, Open Highways 4, Jim Forest and Ranger Dan.

A. Language Arts Activities

1. Reading

a. Group 1

(1.) Reader's Digest 4^2, pp.35-41
"Good-by , Old Sam"

a. Oral reading with teacher or aide.(4)
b. Students will complete a worksheet on word meanings and skimming for details. (3,5,7)
c. Students will write 5 sentences telling what the story is about. (8)

Reader's Digest Skill Builder 4^2
"Good-by, Old Sam"
pp 35-41
Author:Cranston
Pub: Reader's Digest Services, Inc.
Worksheet

(2.) Reader's Digest 4^2, pp. 75-81
"I Love Elephants"

a. Oral reading with teacher or aide.(4)
b. Students will complete a worksheet on matching story character names.(5,7,8) and a short description and specific detail - completing a sentence.
c. Students will write 5 sentences telling what the story is about. (5,8)

Reader's Digest Skill Builder 4^2
"I Love Elephants"
pp. 75-81
Author:Whitbeck
Pub: Reader's Digest Services, Inc.
Worksheet

(3.) Ventures, pp. 212-218
"Wings in the Woods"

a. Oral reading. (4)
b. Students will read orally for specific detail and find and follow conversation in answer to the teacher's questions. (2,4,5)

Ventures
"Wings in the Woods'
pp. 212-218
Author: McClung
Pub. Scott Foreman and Company

b. Group 2

(1.) Reader's Digest 4^1, pp. 71-77
"Queer Things About Dogs"

a. Oral reading with teacher or aide.(4)
b. Students will complete a worksheet dealing with word meanings and skimming for specific information.(5,7,8)

Reader's Digest Skill Builder 4^1
"Queer Things About Dogs" pp.71-77
Author: Terhune
Pub:Reader'sDigest Services, Inc.
Worksheet

(2.) Open Highways 4, pp. 74-82
"Blaze and the Mountain Lion"

a. Oral reading. (4)
b. Orally the students will answer teacher's questions about word meanings and comprehension. (1,2,5)
c. Students will work in group with phonics chart. (6,7)

Open Highways 4
"Blaze and the Mountain Lion"
pp. 74-82
Author: Anderson
Pub: Scott Foresman
Prepared phonics chart

(3.) Open Highways 4, pp. 52-56
"The Swimming Hole"
a. Oral reading. (4)
b. Orally students will answer teacher's questions about word meanings and specific details. (1,2)
c. Pupils will complete a comprehension worksheet by distinguishing between a swimming hole and pool characteristics. (3,5,7)

Open Highways 4
"The Swimming Hole"
pp 52-56
Author:
Pub: Scott Foresman and Company

Comprehension Worksheet

c. Group 3

(1.) Jim Forest and Ranger Dan, pp.1 - 29
"Big Pines Forest" and "The Thing"
a. Oral reading with teacher or aide.(4)
b. Orally, students will answer teacher's questions about word meanings and specific details. (1,2,5)
c. Work with phonics chart. (6,7)
d. The students will do exercises at back of book on pages 62,63,64,65,66, and 67 by putting correct answers on paper. (5,8)

Jim Forest and Ranger Dan
"Big Pines Forest"
"The Thing"
pp. 1-29
Authors: John and Nancy Rambeau

Phonics Chart

(2.) Jim Forest and Ranger Dan, pp 30-50
"The Thing Comes Back"
a. Oral reading. (4)
b. Pupils will work with phonics chart.(6,7)
c. Students will answer questions orally on specific detail, story sequence and word and paragraph meanings. (1,2,5)
d. Students will do the exercises in the back of the book on pages 68,69,70, 71,72 by putting the answers to the questions on paper. (5,8)

Exercises on pages 68-72 in Jim Forest and Ranger Dan

(3.) Jim Forest and Ranger Dan, pp.50-59
"The Bear Trap Works"
a. Oral reading. (4)
b. Discussion of story sequence.(1,2,5)
c. The students will write 5 sentences describing a character in the story.(5,8)
d. Phonics chart. (6,7)

Jim Forest and Ranger Dan, pp.50-59
Authors:John and Nancy Rambeau
Pub: Harr Wagner

Phonics Chart

2. Poetry
a. Pupils will orally read humorous and sound filled animal poems selected by teacher from Arbuthnot's Time For Poetry.

Time For Poetry,
Author:Arbuthnot
Pub: Scott Foresman and Company

3. Spelling - Unit words and Book 3 combination, consisting of 2 groups.
a. Pupils will write their spelling words 4 times, twice in manuscript and twice in cursive.
b. Students will write sentences using their spelling words. (7,8)
c. Students will put their words in alphabetical order. (6,8)
d. Students will look up unit words in the dictionary for their pronunciations. (9)

Basic Spelling 3
Authors:Kottmeyer and Claus
Pub:Webster Div. McGraw-Hill BookCo.
Thorndike Jr. Dict.
Authors:Thorndike and Barnhart
Pub: Scott Foresman

4. English
   a. Students will properly capitalize and punctuate 5 sentences about animals. (8)
   b. Students will correct improper English marked on handed-in papers. (8)
   c. Students will write 2 poems, one about animals that are pets and the second about wild animals. (8)
   d. Students will write and illustrate a riddle about any animal they choose. (8)

B. Social Studies Activities
   1. As an introduction to the unit, pupils will discuss the different kinds of animals they know in Centre County. (1,2)
   2. Pupils will divide the animals they know into three groups - pets, wild, and farm in a discussion, using this to write a poem about a wild animal and a pet. (1,2,8)

C. Science Activities
   1. Students will view and discuss the filmstrip, "Where Animals Live." (1,2)
   2. Students will view and discuss, the filmstrip, "Nature's Disguises", and draw a picture in which they disguise an insect or animal in natural setting for teacher to find. (1,2)
   3. Students will divide animals they know through discussion into two groups, mammals and reptiles. (2,1,5)

Filmstrip, "Where Animals Live"

Filmstrip, "Nature's Disguises"

Level I
Phase 5 (1 week) - Air Pollution

I. Instructional Book Strand
Using the following books the students will be divided into six groups with 4 group preparations: Reader's Digest Skill Builders 4^2, Reader's Digest Skill Builders 4^1, Open Highways 4, Jim Forest and the Bandits, Jim Forest and Lightning.

A. Language Arts Activities
1. Reading
A. Group 1

(1.) Reader's Digest 4^2, pp.11 - 16
"The Great Air Race of 1911."
a. Oral reading with teacher or aide
b. Students will complete exercises at end of story by writing answers on paper.
1. II - Who Did What?
2. III - What Was Missing?
3. V - Matching Words with Meanings
c. Students will orally answer exercise IV, Noting Important Numbers.
(2,3,4,5,6,7,8)

Reader's Digest Skill Builder 4^2
Author:Walker
Pub: Reader's Dig. Services Inc.
Exercises:p.15,16

(2.) Reader's Digest 4^2, pp.111 - 117
"The Great Blizzard of '49"
a. Oral reading with teacher or aide.
b. Students will complete exercise at end of story by writing answers on paper.
1. I - Summing Up the Story
2. II - Word Meanings
3. III - Skimming to Find Figures
(2,3,4,5,6,7,8)

Reader's Digest Skill Builder 4^2
Author: Funk
Pub: Reader's Dig. Services Inc.
Exercises: p.115-17

(3.) Reader's Digest 4^1, pp 64-70,
"The Riddle of Rocky Gorge"
a. Silent reading to answer the riddle of the story: How the girl kept alive in the waterfall.
b. Oral reading with teacher or aide.
c. Pupils will complete exercises at end of story by writing answers on paper.
1. III - Finding Word Meanings
2. IV - Comprehension: Life You Save May Be Your Own
(2,3,4,5,6,7,8)

Reader's Digest Skill Builder 4^1
Author:Blackington and Abbot
Pub: Reader's Dig. Services Inc.
Exercises:p.68-69

(4.) Reader's Digest 4^2, pp. 68-74,
"The Blue Pinafore"
a. Oral reading with teacher or aide.
b. Students will complete exercises at end of story by writing answers on paper.
1. II - Remembering Main Ideas
2. III - Skimming to find Facts
(2,3,4,5,6,7,8)

Reader's Digest Skill Builder 4^2
Author: Prowitt
Pub: Reader's Dig. Services Inc.
Exercises: p 72-73

b. Group 2

(1.) Open Highways 4, pp. 98-108,
"The Great Almost"
"The Wright Brothers"

Open Highways 4
pp 98-108
Author:
Pub: Scott Foresman Company

a. Oral reading to teacher or aide.
b. Orally students will answer teacher's questions about specific detail and word meanings.
c. Students will discuss early flight and planes with teacher.
d. Students will complete worksheet, further reading about Langley and Wrights and identify details of both.

Worksheet
Prepared phonics chart

(2,3,4,5,6,7,8)

(2.) Open Highways 4, pp 140-145,
"Air Force Museum"

Open Highways 4
pp 140 - 145
Author:

a. Oral reading to teacher or aide.
b. Orally students will answer teacher's questions about specific details.
c. Students will choose one plane from story and write and illustrate their own story about it.
d. Students will work in group with phonics chart.

Prepared phonics charts

(2,3,4,5,6,7,8)

(3.) Open Highways 4, pp 146-147
"Wright Brothers Honored"

Open Highways 4
pp 146 - 147

a. Oral reading to teacher or aide.
b. Students will discuss reasons why Wright Brothers were honored.
c. Students will discuss the writing of a newspaper article with teacher and write own article: Cluster E Studies Ecology.

(2,3,4,5,6,7,8)

c. Group 3

(1.) Jim Forest and the Bandits, pp 1-19
"The Red Truck"
"Pete and the Bandits"

Jim Forest and the Bandits
Author: Rambeau
Pub: Harr Wagner

a. Oral reading to teacher or aide.
b. Students will answer questions orally on specific detail, story sequence, and paragraph meanings.
c. Students will answer questions in back of book pp 76-80 by putting answers on paper.
d. Students will work with phonics chart.

Prepared phonics charts

(2.) Jim Forest and the Bandits, pp 20-40
"Help From the Police"
"Road to Gray Rock"

a. Oral reading to teacher or aide.
b. Students will answer questions orally on specific detail, story sequence, and paragraph meaning.
c. Students will answer questions in back of book on pp 81-84.

(3.) Jim Forest and the Bandits,
"Pete's Good Luck Dollar"
"The Storm"
a. Oral reading to teacher or aide.
b. Students will answer questions orally on specific detail, story sequence, and paragraph meaning.
c. Students will answer questions in back of book on pages 85-88.
d. Students will work with phonics chart.

d. Group 4

(1.) Jim Forest and Lightning, pp 1-24
"Lightning is Lost"
"Help From a Crow"
a. Oral reading to teacher or aide.
b. Students will answer questions orally on specific detail, story sequence, and paragraph meaning.
c. Students will answer questions in back of book on pages 74-78.
d. Students will work with phonics chart.

Jim Forest and Lightning
Author: Rambeau and Gullett
Pub: Field Ed. Enterprises

(2.) Jim Forest and Lightning, pp 25-34
"Danger in the Forest"
a. Oral reading to teacher or aide.
b. Students will answer questions orally on specific detail, story sequence, and paragraph meaning.
c. Students will answer questions in back of book on pages 79-80.
d. Students will work with phonics chart.

(3.) Jim Forest and Lightning, pp 35-53
"A Fast Move"
"Hoofprints"
a. Oral reading to teacher or aide.
b. Students will answer questions orally on specific detail, story sequence, and paragraph meaning.
c. Students will answer questions in back of book on pages 81-85.
d. Students will work with phonics chart.

2. Spelling - unit words and Book 3 combination, consisting of 2 groups.
a. Students will write their spelling words 5 times.
b. Students will put their words into alphabetical order.
c. Students will write sentences using their spelling words.
d. Students will look up selected unit words in the dictionary for their meanings.
e. As extra credit, students will use the letters in the words animal and mixture to make new words.

Basic Spelling 3:
Author: Kottmyer and Klaus
Pub: Webster Div., McGraw Hill

Thorndike Junior Dictionary
Author: Thorndike and Barnhart
Pub: Scott Foresman

f. Students will complete 2 skill worksheets for their group:
   (1.) Group A
      a. Writing spelling words that have the same vowel sound as a picture.
      b. Adding s and es endings.
      c. Using spelling words to fill in a crossword puzzle where hints are word meanings.. — Teacher prepared dittoes
   (2.) Group B
      a. Adding ing, s and ed to doing words.
      b. Changing sentences to include ing form of words.
      c. Deleting ing to find root word and adding s, es, ed, and er endings.
   (5,8,10)

3. English
   a. Pupils will discuss the differences between there-their, putting the correct word in 4 teacher prepared sentences and writing 4 sentences using there-their. (8)
   b. Pupils will correct improper English on handed-in papers. (8)
   c. Pupils will write a description of what they see in a slide showing air pollution.

B. Social Studies Activities
1. Students will listen and discuss teacher reading of two short air pollution articles, "The Growing Threat of Dirty Air" and"Two Cities Visited by Killer Smog." (1,2) — Ecology: The City / Author: McCue / Pub: Benziger, In / pp 24 - 27
2. Pupils will view a series of slides and write a description of one of the slides selected by teacher. (1,2,8) — "Air Pollution" slides
3. Pupils will view and discuss the film, Poisoned Air," parts I and II. (1,2) — Film: Poisoned Ai

C. Science
1. Students will chart, discuss and view teacher demonstrations of air concepts.
   a. air takes up space
      1. balloon
      2. straw through potato
   b. air has force - water glass and index card.
   c. particles travel through air evenly (using spray perfume) (1,2,8)
2. Students will draw their view of air pollution. (10) — Singer SVE Record
3. Students will view filmstrip and listen to record. "The Air Pollution Menace" and discuss with teacher. (1,2) — Filmstrip - "The Air Pollutio Menace"
4. Pupils will listen and discuss teacher reading two short articles on air pollution: "What Can be Done to End Air Pollution" and "Cities Start to Clean Their Dirty Skies." (1,2) — Ecology: The City / pp 28 - 31

Level 1
Phase 6 (1 week) - WATER POLLUTION

I. Instructional Book Strand
Using the following books, the students will be divided into four groups: Ventures, Open Highways 4, Jim Forest and the Bandits, Jim Forest and Lightning.

A. Language Arts Activities
1. Reading
A. Group 1
(1.) Ventures, pp 182-194
"Sea Pup"
a. Oral reading with teacher or aide.
b. Comprehension questions and discussion.
c. Word analysis skills.
d. Silent reading.
(2,3,4,5,6,7)

Ventures
Author: Archie Binn
Pub:Scott,Foresman and Company

(2.) Ventures, pp. 195,196
"Sea Lion Moves In On Beach"
a. Silent reading.
b. Oral reading with teacher or aide.
c. Comprehension questions and discussion.
d. Word analysis skills.
(2,3,4,5,6,7)

Ventures
Author: Paul Calvert
Pub:Scott,Foresman and Company

(3.) Ventures, pp. 197-211
"Gallons of Guppies"
a. Silent reading.
b. Oral reading with teacher or aide.
c. Comprehension questions and discussion.
d. Word analysis skills.
(2,3,4,5,6,7)

Ventures
Author: Beverly Cleary
Pub:Scott,Foresman and Company

B. Group 2
(1.) Open Highways 4, pp. 232-237
"Boy [illegible]ch A Harpoon"
a. [illegible]ent reading.
b. Oral reading with teacher or aide.
c. Comprehension questions and discussion.
d. Page 112 of Think and Do Book.
e. Phonics Chart.
(2,3,4,5,6,7)

Open Highways, 4
Author: William Lipkind

Think and Do to accompany Open Highways 4

Phonics Chart

(2.) Open Highways 4, pp. 238-243
"A New Name is Won"
a. Silent reading.
b. Oral reading with teacher or aide.
c. Comprehension questions and discussion.
d. Work sheet in Think and Do to accompany this story.
(2,3,4,5,6,7)

Think and Do
Pub: ScottForesman

C. Group 3

(1.) "Jim Forest and the Bandits", pp 41-47
- a. Silent reading.
- b. Oral reading with teacher or aide.
- c. Discussion
- d. Exercises on pp. 85,86.
- e. Phonics chart

(3,4,5,6,7,8)

Jim Forest and the Bandits
Author: Rambeau
Pub: Harr Wagner

(2.) "Jim Forest and the Bandits", pp.48-57
- a. Silent reading.
- b. Oral reading with teacher or aide.
- c. Discussion
- d. Exercises on pp. 87,88.
- e. Phonics chart

(3,4,5,6,7,8)

(3.) "Jim Forest and the Bandits", pp.58-73
- a. Silent reading.
- b. Oral reading with teacher or aide.
- c. Discussion
- d. Exercises on pp. 89,90,91.
- e. Phonics chart

(3,4,5,6,7,8)

D. Group 4

(1.) "Jim Forest and Lightning", pp.45-52
- a. Silent reading.
- b. Oral reading with teacher or aide.
- c. Discussion
- d. Exercises on pp. 84,85
- e. Phonics chart

(3,4,5,6,7,8)

Jim Forest and Lightning
Author:Rambeau and Gullett
Pub: Field Ed. Enterprises
Phonics Chart

(2.) "Jim Forest and Lightning", pp.53-62
- a. Silent reading.
- b. Oral reading with teacher or aide.
- c. Discussion
- d. Exercises on pp. 86,87
- e. Phonics chart

(3,4,5,6,7,8)

(3.) "Jim Forest and Lightning", pp.63-72
- a. Silent reading.
- b. Oral reading with teacher or aide.
- c. Discussion
- d. Exercises on pp. 88, 89, 90, 91
- e. Phonics chart

(3,4,5,6,7,8)

2. Spelling - Unit words and Book 3 lists and exercises, making up 2 groups.
   - a. Students will write spelling words 5 times.
   - b. Students will look up water pollution words in the dictionary and write meanings.
   - c. Students will do exericses from spelling book to accompany word lists.
   - d. Students will write sentences using their spelling words. (5,8,10)

Basic Spelling 3
Author: Kottmyer and Klaus
Pub: Webster Div., McGraw Hill
Junior Dictionary
Author:Thorndike and Barnhart
Pub:Scott Foresman

3. English
   a. Students will discuss the long and short vowels and do a worksheet. (6,7)
   b. Students will listen to poems about rain and write a poem of their own. (2,8)

Time for Poetry
Author:
Pub:Scott,Foresman and Company

B. Social Studies Activities
   1. Students will watch the filmstrip, "Water Pollution" and listen to the accompanying record. This is followed by a discussion, and illustration and short story describing what they have heard and observed. (1,2,5,8)

Filmstrip and record
"Water Pollution"
Singer Company

   2. Students will listen to an article read by the teacher. "Water Pollution" on p. 19. Discussion will follow during which a list is written on the board of all ways water pollution is caused. (1,2)

Focus on Pollution
"Water Pollution"
Pub: Weekly Reader

C. Science Activities
   1. Students will see the film, "The End of One."
      a. Discussion
      b. Write a story.
      c. Make an illustration. (1,2, 8)
   2. Students will look at pictures of water pollution and discuss what we can do to help. (1,2)

Film:
"The End of One"

Level 3 - Ecology Unit
Intermediate

Materials

I. Instructional Book
   A. Language Arts Activities - Chapter 1
      1. Read background material about the author and the area in which they lived. (3,4)
         a. Discuss animals that were mentioned in the area of their home. (1)
         b. Initiate discussion of the animals that often appear in a city and country atmosphere.
         c. List animals on a chart that live in a city habitat versus a country atmosphere.
            1. What they eat
            2. Movement - how
            3. Color
            4. Characteristics

Wide Horizons
"Big Tree"

Science:
In Your Own Backyard and Everyday Animals by Gertrude Allen

City Animals	Food	Movement	Color	Characteristics
Country Animals				

Today's Basic Science Book 4
Navarra and Zaffaroni

2. Instructional Book - Chapter One - Wawona
   A. Language Arts Activities
      a. Read silently p. 2 and 3 - 216 (3)
      b. Assign group to research the Sequoia tree and gather information about the tree. (4,8)
         1. Size
         2. Locale
         3. Where the name came from
      c. Make a list of all new words encountered and find out their definitions. (5)
      d. Have the children do object transformations into a:
         1. Winter tree
         2. Dead tree
         3. A spring tree
         4. A tree burnt by a forest fire

World Book Encyclopedia

The First Book of Trees by M. B. McCormick

Dictionary

Materials

A. Language Arts Activities cont'd
   e. Read the children the poem "Trees" by Henry Van Dyke and discuss what feelings or experiences they may have had in the forest. Ask if they have been pleasant. (2)
   f. The children will write a creative story about what it would be like to be a tree and watch everything that happens in the forest as the years go by. (7)

Poem: "Trees" by Henry Van Dyke

I. Instructional Book - Chapter Two
   A. Language Arts Activities
      a. Read aloud pp. 217-218
      b. Discuss the plight of the baby plant in the survival of the forest. (1)
      c. Write a creative story entitled: "How it feels to be a baby tree growing. (6,7)
      d. Gather a list of the main insect enemies of the forest including pictures of them and labeled characteristics.

Wide Horizon
Book 4
"Big Tree"

Science Center consists of Filmstrips, A.V. Equipment, Tapes, and various objects mentioned

Insects Labeled	Pictures of Insects	Characteristics
Grub		
Ticks		
Mice		
Carrion		

      e. Collect pieces of wood showing typical diseases, damage and typical insect damage.
      f. Make a forestry cartoon to stress all of nature's survival roles daily.
      g. List vocabulary words in a dictionary. Included in the dictionary would be: (5)
         1. New words learned
         2. Meaning of words
         3. Alphabetical order
         4. Word used in sentence
         5. Vowel sounds
         6. Syllabication
      h. Vocabulary word learned which should be discussed:(5)
         1. Conservation
         2. Conservationist
         3. Extinct
         4. Unrenewable
         5. Refuge
         6. Closed Season
         7. Open Season
         8. Decompose
         9. Biome
         10. Recycle
         11. Succession
         12. Habitat

Insect "Life Story" by V. Lee Burton

Dictionary Booklet for each child.

Materials

I. Instructional Book - Chapter Three
   a. Read silently chapter pp. 222-229 (3)
   b. After reading chapter, the child will be able to place six events of this chapter in proper sequence and sentence structure. (4)
   c. Dramatize events of the chapter by dividing up into acting groups and represent each of the animals.
   d. Make a list of special habits of the skunk, chipmunk and bear. Discuss it's relationship to the forest.
   e. Continue use of spelling dictionary with each chapter. (5)
   f. Use clay to sculpture wildlife forms in a 3 dimensional atmospheric scene.

Text

Ecology: The Mountains and Man by George McCur

Everyday Animals by Gertrude E. Allen

I. Instructional Book - Chapter Four
   A. Language Arts Activities
      a. Read silently chapter details and answer questions on the chapter, i.e. (3,4)
         1. What did the strong wind do to damage the forest?
         2. Why was the damage to Wawona compared to a wrestler?
         3. Describe Wawona's feelings during the three years of torture by the old pine tree.

Chapter 4 Text

I. Instructional Book - Chapter Five
   A. Language Arts Activities
      a. Read aloud pp. 236-242
      b. Write creative news story "Man Creates Fire" headline. (5,6,7)
      c. Read stories to class and discuss interesting ideas formulated.
      d. Invite a forest ranger into the class to discuss his role in the survival of forest.
      e. Make a list of all the jobs a forest ranger must do to preserve the life of the forest.
      f. The children will find out who "Smokey, the Bear" is and what he represents.
      g. The conservation pledge will be recited each morning.

Chapter Five Text

Mike Undig, Forest Ranger will speak to the class.
Ranger Rick

Conservation pledge. One copy for each child.

I. Instructional Book - Chapter Six
   A. Language Activities
      1. Read silently chapter six (3,4)
         a. Recall specific events of previous chapters which help us to recall the history of Wawona.
         b. Compare the young bucks feelings to an event in your life. When have you tried to prove yourself to someone?
         c. Illustrate on a chart the battle in the forest between the two bucks.

Text: Chapter Six

Chart

Materials

A. Language Arts Activities cont'd
   d. Who am I?
      1. Everyone picks an animal of the forest and becomes an authority on it. (8,9) — Animal Kingdom Encyclopedia
      2. Take turns going around the room asking yes questions.
      3. The person who guesses the animal gets the next turn. — Everyday Animals by G.E. Allen

I. Instructional Book - Chapter Seven — Text 7, "Ecology"
   A. Language Arts Activities — "The Grasslands and Man" by George McCue
      1. Read aloud pp. 254-260
         a. Discuss existing conditions which caused the fire to ignite so easily. (1)
         b. Write the sentence on p. 254 which expressed more beautifully "The frightened deer ran by Wanona."
         c. Explain why the above mentioned sentence expresses the idea more eloquently.
         d. Show film "Bulldozed America". Discuss facts learned about the plight of the American Redwood Trees. — Film: "Bulldozed America"

I. Instructional Book - Chapter Eight
   A. Language Arts Activities — Encyclopedia
      1. Introduce chapter on Eagles
         a. Discuss why the Eagles chose the great Wawona as a watchtower.
         b. Research the characteristics of the Eagle, nest formation and eating habits. Find out why the Eagle is the lord of the air. (8) — Ecology The Mountains and Man. P. 32 G. McCue
         c. Construct a classification chart listing all characteristics of the eagle they have found through research in the library.

I. Instructional Book - Chapter Nine — Text: Chapter Nine
   A. Language Arts Activities
      1. Silently read chapter nine (3,4)
         a. Suggested questions to be answered upon reading this chapter.
            1. Who was lost in the forest? — Stations
            2. What was the stranger searching for in the forest?
            3. How did the Trade Rat get his name?
            4. What prize possessions did the Trade Rat take from the prospector?
            5. Why did the prospector think the bear was a ghost?

Materials

I. Instructional Book - Chapter Ten — Text
   A. Language Arts Activities
      1. Read aloud chapter 10 and discuss it's important ecological relationships.
         a. Write a creative story entitled "The Day the Lumberman Came", as seen in the eyes of the forest animals. (5,6,7)
         b. List all the sounds you might hear in the forest. — Tape Recorder
         c. Tape sounds of the forest into a tape recorder. Have the children listen to the tape to see if they can recognize all the sounds.
         d. Research the lumber industry and record all products made from lumber. — Charts, Magazines
            1. Make a collage of all lumber products.
            2. Examine different textures of wood with your five senses. — Wood
         e. Write a play about how we could conserve our trees. (5,6,7)
            1. Each group will present their plays as a final culmination. — A Tree is Born by J. M. Gulcher
            2. Visitors maybe invited to share in the performance.
         f. The giant Sequoia trees and Sequoia National Park are named after the Cherokee Indian scholar Sequoyah. — The First Book of Trees, by M.B. McCormack
            1. Find out what Sequoyah did that no other person has ever done. (8)

I. Introduction - Language Arts - Ecology Unit
   A. Activities
      a. Discuss the general categories involved with ecology survival. (1,2) — Life Story by Virginia Lee Burton
      b. Discuss the dependency each human being has for each other. (1,2)
      c. Have the children attempt to explain the order of life. What came first? — The Story of Mankind by Henrik Willen Van Loon
         1. Earth
         2. Plants
         3. Man
      d. Show film Cry of the Marsh. Discuss its harsh realities and their relationship to daily life. — Film: Cry of the Marsh
      e. Write in a diary all feelings they may have gathered after seeing the movie. (5,6,7)
      f. Trace the origin of one item we use daily i.e. shoe, department store, shoe factory, tannery, packing plant, stockyard, farm, corn, hay, soil where these crops are grown. (8)
      g. Have children design warning posters — Magazines, Newspapers
         1. Soil and mineral
         2. Air-water pollution
         3. Forest, parks and recreation
         4. Wildlife
         5. Human resources
      h. Collect all pictures concerning these problems and categorize them into five sub-topics.

Materials

II. City Language Arts Activities

A. Introduction - Have students describe what would happen if twenty new students entered their school every day. Have them be specific, for example:
   1. More Books
   2. Rooms filled
   3. Playground crowded

B. Relate growth factor of:
   a. School to population increases in a city.
      1. Find statistics on the population of New York in 1870 - 1930 - 1972.
   b. Relate these facts to growth across the United States.
   c. Read poetry in small groups using a city theme. (4)
      1. Discuss themes
      2. Read orally with expression for meaning.
   d. Show filmstrips on Crises in the City.
      1. Recall specific details concerning life in the city. (4)
      2. Discuss important conditions which place stress on life in the city (1)
      3. Over population
      4. Slums
      5. Air pollution

Landlord:
by Langston
Hughes
Chicago
Carl Sandburg

Filmstrip:
"Crises in the
City".
New York Times

III. Air Pollution - Introduction

A. Concept: Conservation of pure air is necessary in a growing industrial nation.
   a. Introduce the Ringelmann chart and how it is used to measure air pollution.
   b. Discuss the following statements. Try to resolve them to some incident that has happened in the community.
      1. Air pollution kills, costs and cripples.
      2. Air pollution affects living cells.
      3. Air pollution deteriorates property.
      4. Air pollution destroys outdoor buildings, statues and art works.
      5. Air pollution affects the weather.
      6. Air pollution means fuel wastes.
      7. Air pollution causes respiratory diseases.
   c. With a map of the community, locate sources and types of air pollution which exists there.
   d. Show film strip on the clean air crises in urban America.

Today's Science
Experiments
Navara and
Zaffaroni

Filmstrip:
Crises in the
City, Clear Air
New York Times

Materials

Water Pollution

Concept: The amount of usable water available on the planet earth is reduced by pollution.

a. Show film "Bulldozed America" and discuss it's revelance to our daily lives.

Film: "Bulldozed America"

b. Make a list. Have students discuss how each one of these might be a potential water polluter.

1. Garbage grinder
2. Canning plants - packing houses
3. Textile industries
4. Coal mines
5. Chemical plants
6. Detergents - washing machines
7. Sewage
8. Insecticides
9. Pulp and paper mills
10. Home garbage

Teacher's Curriculum Guide To Conservation Ed.

IV. Forest and Fields

Concept: The forest is a renewable natural resource.

a. Guest speaker and forest ranger, Mike Undig will discuss life in the forest through the life cycle of a white tailed deer.

b. Observe a forest, soil and the covering of leaves and organic matter on the land.

c. Discuss what is the effect of the ground cover on the amount of water that runs off during a rain.

d. Lead a discussion of ways that forest fires can be prevented. Topics are:

1. For smokers
2. Campers
3. Brush burning

e. Prepare posters of cartoons that stress the importance of fire safety in the forest.

V. Animal - Wildlife

Concept: Animals play a vital role in the balance of nature.

a. Select an animal the child is interested in studying.

b. Secure the following information for each animal:

1. Name of animal
2. Feeding habits
3. Habitat
4. Means of defense
5. Natural enemies

V. Animals - Wildlife cont'd

c. Investigate what animals which have become extinct due to man's malicious killing.

d. Discuss the importance of game laws and hunting seasons. Also why are wildlife refuges, preserves and sanctuaries important.

e. Have the class consider what action to take to make citizens aware of how their carelessness is affecting our forest and what can be done to encourage them to be more considerate when working or playing in or near forest.

Language Arts Skills*

1. Speaking
2. Listening
3. Silent Reading
4. Oral Reading
5. Comprehension
6. Word Recognition
7. Word Analysis
8. Writing
9. Research
10. Self-selection
11. Affective

*note-The order in which these skills are listed and numbered applies to Level IV only.

Materials

Level IV

I. Instructional Book Strand - Phase I
(Two weeks) Introduction and Cities

A. Language Arts

1. Reading Center

a. Each child will sign a "contract choosing 3 books to read during the unit. The possibilities are selected by the teacher and introduced to the class.(10)

b. The children read at designated times and are required to define certain vocabulary word and answer questions with a variety of aims. (3,5,6,7,8,9)

c. While reading each book the children are required to complete 4 activities. Suggestions for activities can be found on the bottom of story question sheets. The activities are to include one of each of the following:
   1. Creative writing (8)
   2. Research (9)
   3. Art
   4. Free (any type of activity)
   These activities are from time to time shared with the class.

<u>The Saturdays</u> by Elizabeth Enright
<u>The Nitty Gritty</u> by Frank Bonham
<u>Roller Skates</u> by Ruth Sawyer
<u>My Side of the Mountain</u> by Jean George
<u>Shag</u> by Robert McClung
<u>Big Tree</u> by Mary and Conrad Buff
Worksheets for each book

2. Listening Center

a. Each child listens two times to the first teacher prepared tape introducing ecology. The children also fill in prepared questions as they listen. (2,5,8)

b. The children, having defined <u>environment</u> before the first tape lesson is started, examine the Great Plains food chain.

c. Each child should write the definitions of these words as the tape progresses: ecology; environment procedures; consumers; predator; parasite; scavenger; decomposer; commensalism; organism; pollution; mutualism
(These words are also spelling words)

d. Before listening to the second taped lesson, each child should read dittoed questions then listen for the answers. (2,5,8)

e. The second tape lesson, is called "Life and Death" in Communities" and introduces the concepts of food chain, food web, community lost food energy and balanced communities.

f. The tape(lesson 2) includes spelling vocabulary words: community, soil, herb, web, canopy, shrub, chain letter. (5)

<u>Ecology</u>
<u>The Circle of Life</u> by Harold R. Hungerford
Chapter 3
Worksheets

<u>Ecology: The Circle of Life</u>
by Harold R. Hungerford,
Chapter 3
Worksheets

	Materials
3. Spelling Center	
a. The week's work in spelling is located in 4 stations. Each child should complete all 4 stations and a practice sheet by the end of the week.	Stations #1-4 with answer keys
b. The first week's words include previously mentioned ecology related words and words that end in y chosen from the spelling book.	Y words taken from Basic Goals in Spelling 5 by William Kottmeyer and Audrey Claus, Unit 25
c. The week's stations require each child to copy words correctly, read a story and underline spelling words, change y to i and add es, and unscramble all words. (3,6,7,8)	
d. While waiting for his turn at the spelling stations, each child should complete a practice sheet reviewing antonyms. (7)	Phonics and Word Analysis Skills 5² pub. by Continental Press, Inc. p. 11
e. The second week's words include previously mentioned ecology words and ough words. (7)	
f. The second week's stations require that each child copies words correctly, spells words with different sounds, write sentences and unscramble words. (3,5,7,8)	Stations 1-4 and answer keys
g. While waiting for a turn at the spelling stations, each child should complete a practice paper which requires choosing words with like meanings. (5)	English for Meaning(Wkbok) Houghton-Mifflin p. 14
4. Art Center	
a. Each child goes to the art center at least once a week.	
b. The children work on activities (see Reading Center) during this time.	
5. Review Center	
a. This center is used for a variety of activities. The last half of this scheduled time allows children to complete work in areas to which they need to pay special attention.	Ecology: Habits and Habitat American Education Publications, p.3
b. During the first week the first part of this time is used to interpret and read about the cartoon on p. 3. Then write a personal definition of ecology, share it and save it for the end of the unit. (1,4,5,11)	
c. During the second week the first part of this time is used to read and discuss pp. 4-7. Examine all pictures carefully. "What do they tell you?"	Ecology: Habits and Habitat Publications, p.4-

B. Social Studies and Science

1. Week 1 - Introduction

a. Discuss "What ecology means to me". — "Cry of the Marsh"

b. See the movie "Cry of the Marsh"

c. Write a brief commentary about the meaning of the movie. (5,8,11)

d. Share written commentary's with the class.(1,4,5)

e. See the movie "What Is Ecology?" and discuss new feelings about the meaning of ecology. (1,2,5) — "What Is Ecology"

2. Week 2 - The City

a. See the filmstrip with record "The Roots of Our Urban Problems".

b. Discuss and list on the board major problems and possible solutions in the city. (1,5,11)

c. Read out loud "Chicago" by Carl Sandburg. Help the children interpret the poem, paying careful attention to it's good and bad points. — "Chicago" (a poem) by Carl Sandburg

d. Read "Ballad of the Landlord " silently then as choral reading. (3,4) — "Ballad of the Landlord" Langston Hughes

e. Have the children write a poem expressing the hope or hoplessness(which ever they feel) they see in our cities.(5,8,11)

Level IV.

I. Instructional Book Strand - Phase Two (two weeks)

A. 1. Reading

a. The children continue reading their contracted books. (3,10) — The Saturdays by Elizabeth Enright, The Nitty Gritty by Frank Bonham, Roller Skates by Ruth Sawyer, My Side of the Mt. by Jean George, Shag by Robert McClung, Big Tree by Mary and Conrad Buff, Worksheets for each book.

b. Each child may begin a new book when he has satisfactorily completed all questions on the worksheets. Also, he must complete all 4 previously mentioned activities. (5,7,8,9)

2. Listening

a. During the third week of the Unit the i listening tape continues a discussion introduced in week of the forest and introduces the concept of both pond and forest succession.

b. The children fill in worksheets as they listen to the tape. (2,5,8) — Tape preapred from Ecology: The Circle of Life by Harold R. Hungerford, Chapter 4 Worksheets

c. The worksheets direct the children to examine diagrams showing pond succession and place nine statements describing succession in the correct order. (5)

d. During the fourth week the listening lesson introduces man into the study of ecology. — Tape from Ecology The Circle of Life by Harold R. Hungerford, Chapter 5.

	Materials
2. Listening cont'd	
e. The children fill in a worksheet which requires graph reading as well as careful listening. (2,5,8)	Worksheets
f. The children must answer questions pertaining to man's influence on his environment and list the 4 ways population can be controlled.(5)	
g. After listing the four ways population can be controlled the children X the two impractical solutions, V the most dreadful solution and * the best solution. (5,11)	
h. The children also list the four possible ways man can speed his understanding and appreciation of his role in the ecosystem in preparation for lesson #5.	Dittoed quiz from lesson two and three, worksheets from lesson two; three
i. During week three of the unit, the children demonstrate their listening comprehension of week two's lesson with a quiz. The children may use their listening worksheets to help them. This procedure is repeated for week three's listening lesson.	
3. Spelling	
a. The words for lesson three come from class discussions and two specific sources, the listening center and the spelling book.	Listening Lesson #3
1. The listening and discussion spelling words include: climax, community, culture ecosystem, miscroscope, succession, uncultured.	Basic Goals in Spelling, Book 5 by William Kottmeyer and Audrey Claus,p.88
2. The spelling words from the spelling book are "long words".	
b. Each child completes his four spelling stations and one practice paper by the end of the week at which time a test is given.	#1-4 Spelling stations and appropriate answer keys.
c. The four stations require that the children copy correctly, divide words into syllables, identify specific sounds and suffixes, arrange words in alphabetical order and identify words when given dictionary pronunciations. The practice sheets require that the children use homonyms in sentences.	Phonics and Word Analysis Skills, 52 Pub. by Cont.Press P. 12
d. The words for lesson four are taken from class discussions and two specific sources: the listening center and the spelling book.	Listening lesson#4 Basic Goals in Spelling, Book 5 by William Kottmeyer and Audry Claus, p. 94.
1. The listening center and discussion spelling words include: potential, cope, domesticated, survival, insecticide, pesticide, hereditary, immunity, beneficial, immigration, emigration, paradox.	
2. The words from the spelling book are homonyms.	

Spelling cont'd

e. The children complete the four stations and one practice sheet by the end of the week at which time a spelling test is given.

f. The four stations that the children copy words correctly, replace homonyms in sentences, write dictionary pronunciations and definitions, and rewrite several sentences correctly. (7,8,9)
The practice sheet requires that the children identify synonyms. (7)

Stations #1-4
Appropriate Keys
Phonics and Word Analysis Skills, pub. by Cont. Press, P. 10

4. Art Center
   a. The children continue working on activities based on stories they are reading.
   b. Finished activities are displayed and shared with the class.

5. Review Center
   a. During the first half of the third week's review period the teacher gives the children brief instruction on the uses of to, too, and two and the uses of there, their and they're(6)
   b. During the first half of the fourth week's review period the teacher gives brief instruction on the uses of punctuation marks. (8)
   c. After each period of instruction the children practice what they have learned and write ecology sentences to demonstrate their learning. (6,8)
   d. During the second half of each review session the children complete any unfinished work or activities.
   e. The teacher goes over all work from the previous week with each student and evaluates his accomplishments with him.

Practice sheets on too, two, to; there, they're, their; punctuation marks

B. Social Studies and Science
   1. Forest and Field Week 3
      a. See filmstrip "The Face of the Land" and discuss this "face" and it's despoilment. (1,2)
      b. See movie "Bulldozed America". Have children write down, immediately after seeing it, their most vivid impressions of the movie. Then share these impressions and relate them to the State College Area. (1,2,8,11)

"The Face of the Land" filmstrip

"Bulldozed America - movie

	Materials
Forest and Field Week 3 cont'd	
c. Discuss the origin of paper. What was the problem that paper (and lumber mills) were creating in "Bulldozed America"?	"Don't Throw Away Paper, It Could Be A Chair" Courier-Post, Camden, N.J. May 12, 1972
d. "What are possible alternatives to cutting down more trees?"	
e. The teacher reads "Don't Throw Away Paper, It Could Be a Chair" (2)	
f. See the film "The Hunter In The Forest". Have the children write their impressions of what the man learned about hunting and nature. Share the impressions, paying special attention to how he changed. (1,2,4,5,11)	"The Hunter In The Forest" Movie
2. Animals Week 4	
a. Recalling the movie "The Hunter In the Forest" discuss the natural predators of animals.(1,2)	Wollensac Tape "Ecology: Predator, Prey" Worksheets "Lobo" by Franklin Russell
b. Listen to the tape "Ecology: Predator Prey" and fill in worksheets. (2,8)	
c. Ask class "why has man killed most predators such as the wolf?" Read "Lobo" to the class as an illustration of a fiersome predator destroyed. (2)	
d. Discuss effects of killing of predators. (1,2)	
e. Have the children put themselves in the place of an animal and write a brief story about how pollution might affect them. (8)	"The Deadly Delaware" by Rick, Dean Courier-Post Camden, N.J. May 13, 1972 p. 2-3m
f. Read the newspaper article "The Deadly Delaware" to illustrate a genuine affect of pollution on animals.	
g. See the movie "The Loon's Necklace". Have the children draw one of the mask's which represent seasons, emotions, animals, age, etc. and tell why the mask looks like what it is supposed to represent.(2,5,11)	"The Loon's Necklace" movie
h. Given examples of cinquain, have the children write some of their own. (8)	Cinquain

Level IV

I. Instructional Book Strand

Phase Three (two weeks)

See Phase I List

A. Language Arts

1. Reading

a. The children continue reading their contracted books.

b. Each child may begin a new book when he has satisfactorily completed all questions and vocabulary on the worksheets. Also, he must complete 4 previously mentioned activities. (5,7,8,9)

2. Listening

a. During the fifth week of the unit the listening tape explains and makes suggestions concerning the four possible ways man can help his ecosystem.

Ecology: The Circle of Life by Harold R. Hungerford, Chap. 6

b. The children fill in worksheets as they listen to the tape. (2,5,8)

Worksheets

c. Past behavior and future actions are elaborated upon during the tape. The worksheets help the children "pinpoint" these behaviors and actions.

Tape on Ecology by George McCue pp. 42-61

d. During the sixth week the tape, taken from Ecology, elaborates on specific instances where man has harmed his ecosystem.

e. The children again fill in worksheets as they listen to the tape. (2,5,8)

Worksheets

f. The worksheet directs the children to list the consequences of a variety of man's actions.

g. During week 5 of the unit the children demonstrate their listening comprehension of week 4's listening lesson on a quiz. The children may use their listening worksheets to help them. This procedure is repeated for week 5's listening lesson. (5,8)

3. Spelling

a. The words for lesson three come from class discussions and two specific sources: the listening center and the spelling book.

1. The listening center and discussion spelling words include: crisis, poison, pollutant, bias, ecological, ethic, habit, value, unique, stress, economical.

Listening lesson #5

2. The words from the spelling book all contain the prefix "ex".

Basic Goals in Spelling Book 5 by Wm. Kottmeyer & Audrey Klaus, p. 97

b. Each child completes his four spelling stations and one practice paper by the end of the week. (at which time a test is given.)

	Materials
Spelling	
b. Each child completes his four spelling stations and one practice paper by the end of the week (at which time a test is given).	Stations #1-4 and appropriate keys Phonics and Word Analysis Skills 5, Pub. by The Cont. Press, p.7
c. The four stations require that the children copy correctly, write definitions when given the meanings of the root words, write words in syllables and rewrite sentences with misspelled words. (7) The practice sheet requires that the children identify voewl sounds of a, i, and the schwa sound. (7)	
d. The words for lesson six are taken from class discussions and two specific sources; the listening center and the spelling book.	Listening, Lesson#6 Basic Goals in Spelling, Book 5 by Wm. Kottmeyer and Audrey Klaus, p. 103
1. The listening center spelling words include: population, detergent, algae, oxygen, radiation, thermal, atomic	
2. The words from the spelling book all have an-ment suffix.	
e. The children complete the four atations and one practice sheet by the end of the week (at which time a spelling test is given).	
f. The four stations require that the children copy words correctly, write root words and words with a root ending in silent e, write an ecology story and list words in syllable columns.(7,8) The practice sheet requires that the children use the sounds of y in sentences. (7)	Stations #1-4 and appropriate keys, Phonics and Word Analysis by the Cont.Press, p.8
4. Art	
a. The children work on activities based on stories they are reading.	
b. Finished activities are displayed and shared with the class.	
5. Review	
a. During the first half of the fifth week's review period the children receive brief introduction on subject pronouns. (6)	Our Language Today 5, pub.by American Book Co. ,p.181

Review cont'd

Materials

b. During the first half of the sixth week's review period, brief instruction on pronouns as complements and direct objects is given. (6)

Our Language Today, pub. by American Book Co. pp. 184-188

c. After each period of instruction, the children complete brief worksheets and write 3 ecology sentences demonstrating the uses of pronouns. (6,8)

Worksheets on pronouns

d. During the second half of each review period the children complete any unfinished work or activities as the teacher goes over and evaluates all work from previous week with each student.

B. Social Studies and Science

1. Air Pollution - Week 5

a. See the filmstrip "The Air Pollution Menace" and discuss the most shocking points made. (1,2)

Filmstrip "The Air Pollution Menace" with record "Understanding Air Pollution" and worksheets "Our Poisoned Air" movie

b. Play the tape "Understanding Air Pollution" and fill in worksheet. (1,2,5)

c. Read suggestions for stopping air pollution to find out what each person can do. (3,4,11)

d. See the movie "Our Poisoned Air" and discuss most horrifying and encouraging aspects of the film. (1,2)

e. Perform experiment to show residue from burning coal.

Alcohol burner coal, beaker and one-hole stopper

2. Water Pollution - Week 6

a. See the filmstrip "Water Pollution -a Complex Problem". Why does this problem concern us?(1,2)

Filmstrip, "Water Pollution A Complex Prob. and record

b. See the filmstrip, "Conserving our Natural Resources - Enough Water for Everyone" and and answer worksheet questions. List ways each citizen can help.

c. See "The End of One" and discuss how people are like the seagulls. (1,2,5)

"The End of One"

d. Read "The Scenic Pine Creek: Study in Pollution" to the class to illustrate that all is not hopeless. Also discuss "A River Restored: Oregon's Willamette" (2,5)

The Scenic Pine Creek: Study in Pollution, The Pittsburgh Press, April 30, 1972 p. D-8

"A River Restored: Oregon's Willamette" National Geographic, June 1972, pp. 816-835

Unit: A Study of Ecology

Level 5 Section 1 - Introduction to Ecology

I. Instructional Books (Reading Center)

A. Each child will read at least 3 of the listed books in the six week period depending on length and difficulty. (3,9)

B. The child will complete teacher - prepared study sheets for their book.
   1. To check story comprehension. (4,5)
   2. To develop character and situation understanding.
   3. To develop unit Ecology, Social Studies and Science concepts in story.

The Grizzly
The City Under Ground
The Seventeenth Street Gang
Adam Bookout
Lions on the Lawn
Have a Good Year
Nitty Gritty
White Water, Still Water
The Golden Eagle
Gloomy Gus

II. Supplementary Books and Materials (Research Center)

A. Each child will complete at least one research sheet a week regarding an ecological problem and its prevention or solution. These sheets will be contained in a Research Booklet. (2,3,7,8)

B. A class scrapbook of newspaper and magazine articles will be constructed to be used as an additional reading source. (4,8)

C. Film: Discussion (1,2)
   1. Recall birds, animals, plants that were involved.
   2. What was the affect of the bulldozer?
   3. Why bulldozer was there?
   4. Why is it important for us to correct these problems?

National Geographic
Readers Digest
Better Homes and Gardens series
"Environment YES Hysteria NO"
Newspaper clippings
Library Books
Magazine articles

Film: "Cry in the Marsh"

III. Spelling - Writing Center

A. Children will complete the Weekly Spelling Sheet
   1. Basic Ecology words of migration, competition, pollution, erosion, emission, etc.
   2. Added 5th grade level spelling words with-tion and -ion suffixes. (5)
   3. Recognition of root words.
   4. Parts of speech of root word and how changed when suffix is added. (6)
   5. Definitions (5)
   6. List birds and animals that migrate or hibernate. (Science concept)
   7. Write paragraph about Ecology using list words.(7) (English - punctuation, sentence structure, vocabulary)

Spelling Ditto#1
Word list
Exercises

B. Cartoon: "The Pollutocrat"
   1. What is a Plutocrat"? Why are characters in this cartoon labeled "Pollutocrats"?
   2. Draw a cartoon showing other birds or animals reactions to "Pollutocrats".
   3. Children bring other newspaper cartoons related to Ecology.

Newspaper cartoon

Unit: A Study of Ecology

Level 5 Section 2 - The City

I. Instructional Book
Continue as in Section #1

II. Supplementary Books and Materials - Research Center
A. Continue Research booklets (8)
B. Continue Scrapbook
C. Films - Discussion

Films:
"Ecology"(West Penn)
Franklin, Ohio-
Clean Town

"What is Ecology"
"Bulldozed America"

D. Filmstrips -independent viewing

Filmstrip:
"What's Under the City"

E. Each child will add information from his reading to a bulletin board. (Ex. "One issue - printing - of the New York Times takes 100 acres of trees.)

III. Spelling - Writing Center
A. Pupils will complete the Weekly Spelling Sheet

Spelling Ditto #2
Word List
Exercises

1. Basic Ecology words pertaining to city problems such as government, environment, excitement, tenement, ghetto, degradable.
2. Added Fifth grade level words with -ment and -able suffixes (5)
3. Recognition of root words (5)
4. Parts of speech of root word and how changed when suffix is added (6)
5. Definitions (5)
6. Write a story about living in the city using spelling words (7)

B. Each child will read about one large city and take notes about its entertainment, educational institutions, parks, hospitals-and problems.
1. Pupils will illustrate a pleasant and unpleasant aspect of living in the city.

C. Students will write a poem about living in the city
1. Teacher will read aloud poems written by children from the city slums and ghettos

I Wrote My Name on the Wall
Sidewalk Songs
Ronnie Solbert

2. Class will compose a list of some of the good and bad things about living in the city. Beside each item they will add a descriptive sound, smell, or sight (even colors) that they think matches the city word (#4,5,7)
3. The students will write their own poem of city-life possibly using ideas from #1 and #2 above.
4. Poems will be dittoed for the class.

Unit: A Study of Ecology

Level 5 Section 3 - Forest and Field

I. Instructional Book
Continue as Section #1

II. Supplementary Books and Materials - Research Center
A. Continue Research Booklets, Scrapbook, and Bulletin Board as in Section #2
B. Film — Film:"Web of Life"
C. Filmstrips - Independent viewing — Filmstrips: "Intro. To Ecology: 6 Basic Systems" "Marshes" "Marshes - Despoliation and Imbalance"
D. Speaker - Mike Ondik, Fish and Wildlife Service (The Pennsylvania State University)
E. The students will interpret a riddle (research - use of wood)
"You can climb it, get cool under it, make a bow and arrow out of it, build a house of it. But did you know you can drive on it, take a picture with it, catch a sneeze in it, drink from it, go into orbit because of it? What is it?" — People and Their Environment (Gr.4-6)
F. The students will find information on the listed conservationists and organizations.
1. Discussion - "Why does man need wilderness and natural areas?" — History Ditto
G. The students will read and answer questions on the Biomes (3,4,7,8) — Ecology Book C Pages 6-9 (Weekly Reader)

III. Spelling - Writing Center
A. Students will complete weekly Spelling Sheet — Spelling Ditto #3
1. Basic Ecology words pertaining to Forest and Field such as biome, deciduous, coniferous, decomposers — Word List
2. Added Fifth grade level words
3. Recognition of root words (5)
4. Parts of speech of root words and how changed when suffix (-ize) is added. (6) — Exercises
5. Definitions (5)
6. Syllables (5)
B. The students will write the narration of the film from the viewpoint of an onlooker (the forest, the grouse, the deer, etc.) — Film: "The Hunter and the Forest"

Unit: A Study of Ecology

Level 5 Section 4 - ANIMALS

I. Instructional Book
Continue as in Section #2 with addition of new books

Rascal North
Festival in the Park Copeland
The Noonday Friends Stolz

II. Supplementary Books and Materials - Research Center
A. Continue Research Booklets, Scrapbook, and Bulletin Board as in Section #2 (8)
B. Films and discussion

"Animal Habitats"
"How Nature Protects Animals"

C. Filmstrips - Independent viewing

"Desert Plants and Animals"
"The Vanishing Prairie Series"
1. American Prairie
2. American Buffalo
3. The Mountain Lion
4. Coyotes and Other Prairie Animals
5. Birds of the Prairie
6. Prairie Dogs

"Natures Disguises"
"Adaptations in Animals"
"Interdependence of Plants & Animals"
"Everything Changes"
"How Adaptation Helps Living Things Survive"

D. Film loops: Independent viewing

"Animal Protection"
"Speeds of Animals"
"Reindeer Herding in Lapland"

E. Each student will research and give an oral report (1,2,3,4)
1. Select an extinct or endangered animal, bird or fish
2. Information to be included:
   a. Habitat - location, food, habits
   b. Predator or prey
   c. Why endangered
   d. What is being done to save him

Encyclopedias
National Geographic Magazine
Animal Kingdom Encyclopedia

F. Students will participate and share in a daily 15 minute discussion concerning new uses of animals for conservation (1,2,3,4) (Ex. Musk-ox can give more wool for thread than the cashmere goat. Lechive gives a greater return of meat per acre of feeding than cattle.)

III. Spelling - Writing Center
A. Students will complete weekly spelling sheet
1. Basic Ecology words pertaining to animals such as nocturnal, estivate, adaptation, habitat, extinct, ecosystem, etc.
2. Added Fifth grade level words with x-prefix.
3. Parts of speech of selected words (6)
4. Definitions (5)
5. Syllabication (5)
6. Students will write a short story using as many of the spelling words as they can. (A winner count)

Spelling Ditto #4
Word list
Exercises

Animals (cont'd)

IV. Art Activity

A. Students will choose partners to design and draw an animal, bird or fish of year 3001
   1. Drawings will show adaptations made to survive in a polluted world.
   2. Attached index cards will explain adaptations.

18x36 oak tag
Magic Markers
4x5 index cards

V. Extra Credit Assignmnets

A. Make a model of a modern or ancient city
B. Design Ecology - Conservation Stamps
C. Sew Ecology flag for cluster use

Adhesive backed paper
Green, yellow, white felt
Dowel

Unit: A Study of Ecology

Level 5 Section 5 - AIR POLLUTION

I. Instructional Book
Continue as in Section #1

II. Supplementary books and materials - Research Center
A. Continue Research Booklets, Scrapbook, and Bulletin Board (8) as in Section #2.
B. Film - discussion (1,2) — "Poisoned Air" "The Air Pollution Menace"
C. Filmstrip - tape - discussion (1,2)

D. Each student will read the chapter on Air Pollution and answer teacher-prepared question (types, effects, causes, and solutions) (3,4,7,8) — Challenges in Our Changing Urban Society Chpt.16 pg.211-222 Question ditto

E. Students will share information they have read (Research Booklets) on Noise pollution (1,2)
F. Students will prepare a graph comparing the causes of air pollution by percentage. (8)

III. Spelling - Writing Center
A. Students will complete the weekly spelling sheet. — Spelling Ditto #5 Word list Exercises
1. Basic ecology words pertaining to air pollution such as carbon dioxide, radiation, exhaust, atmosphere, pollutants, etc. (5)
2. Added Fifth grade level words with oi diphthong such as noise, poison, choice, appoint, royal, buoyant, etc. (5)
3. Syllabication (5)
4. Definitions (5)

Unit: A Study of Ecology

Level 5 Section 6 - Water Pollution

I. Instructional Book
Continue as in Section #1

II. Supplementary books and materials - Research Center
A. Continue Research Booklets, Scrapbook, and Bulletin Board (8) as in Section #2
B. Films - discussion — "Water Cycle" "The End of One" "Water Pollution A Complex Porblem"
C. Filmstrip - tape - discussion
D. The students will share information they have read concerning water pollution (Research Booklets)
E. Each student will read the chapter on "Water Pollution" and answer teacher-prepared questions (types, effects, solutions) — Challenges in Our Changing Urban Society Chpt. 17 pp224-235 Question ditto

III. Spelling - Writing Center
A. Students will complete the weekly spelling sheet
1. Basic ecology words pertaining to water pollution such as hatcheries, detergent, purify, bacteria, algae, etc.
2. Added Fifth grade level words with schwa such as, poisonous, hydrogen, oxyden etc.
3. Plurals ending in y (5)
4. Syllabication (5)
5. Definitions (5,8)
6. Dictionary - pronunciation spellings (5,8)

Spelling Ditto #6 Word list Exercises

B. Students will write letters to organizations and businesses for information as to what they are doing to stop air and water pollution - or - asking for information about current problems and solutions.(7)

Attached list of addresses

Level 6

Phase 1 (2 weeks) - Introduction to Ecology and the City

I. Instructional Book Strand
Using the following books, the students will choose one: Roller Skates, Janitor's Girl, It's Like This, Cat, The Saturdays, Nellie Cameron. (10,3)

Several copies of:
Roller Skates
Author: Ruth Sawye
Pub: Viking Press
Janitor's Girl
Author: Frieda Friedman
Pub: Morrow
It's Like This,Cat
Author:Emily Neville
Pub:Harper and Row
The Saturdays
Author: Eliz.
Pub: Holt,Rinehart Winston
Nellie Cameron
Author: Michelle Murray
Pub: Seabury

A. Language Arts Activities

1. Research Center

a. Each student will complete a study guide sheet comprising vocabulary words and an introduction to the Instructional Book. (8)

b. Each student will complete a comprehension sheet after completing the Instructional Book. (5)

c. Each student will write and illustrate about the neighborhood the main character of the Instructional Book lives in. (8)

d. Formal English teaching will be taught independently as teacher identifies improper English Usage in daily writing assignments. (8)

e. Using the film, "Cry of the Marsh," the students will illustrate and discuss together their reactions. (5,1,2)

f. Using the film, "What is Ecology?" the students will discuss together the content. (1,2)
Will draw a picture of what ecology means to them.

g. Students will read selection from chosen book to the rest of the class concerning a problem of the city. (4)

Study guide sheets to accompany each Instructional Book

Comprehension sheet to accompany each Instructional Book

Movie,"Cry of the Marsh"

Movie "What is Ecology?"

2. Spelling Center

a. Students will complete #1 skills sheet using 26 vocabulary words comprising ecology terms and take test on words at end of first week. Skills to be taught are: (6,8)
(1.) Suffixes and meanings
(2.) Parts of speech
(3.) Root words
(4.) Writing a short story using as many words as possible from the spelling list.

Spelling skills sheet #1

b. The student will complete #2 skills sheet using 24 words comprising vocabulary of the city and take test on words at end of second week. (6,8)

Spelling skills sheet #2

3. Poetry Center

a. Using the poem, "Chicago" by Carl Sandberg as a listening activity the students will discuss how it describes a city. They will discuss the rough word texture of the poem. (2,1)

Poems
"Chicago"
Author: Carl Sandberg

3. Poetry Center (continued)

b. Students will read the poem "The Ballad of a Landlord" and answer in a paragraph: "Does this and can this happen today in our American cities?" Students will then read the Newsweek article "Mother Waddle's Mission" and answer in a paragraph how the work of Mother Waddle's Mission can prevent what took place in the "landlord". In the third paragraph the students will suggest ways they would prevent what took place in the "Ballad of the Landlord". (5,8,3)	"The Ballad of a Landlord" by Langston Hughes "Mother Waddle's Mission", Newsweek, p.123 May 1, 1972
c. Students will read "Skyscraper" by Rachel Field and write a poem to answer the questions raised in "Skyscrapers". (8,3)	"Skyscrapers" by Rachel Field
d. Students will read Rachel Field's poem, "City Rain"and write a poem called "Country Rain". (8,3)	"City Rain" by Rachel Field
e. Using the poetry booklet, "I Live in a City", pupils will select four of eight activities which relate to poems in the booklet. Activities include creative writing, answering questions asked in the poem, and relating own background to the poems(5,8,3)	Booklet-"I Live in the City"- a ditto made up for this unit (including activities)

B. Social Studies Activities

1. Students will read again Carl Sandburg's poem, "Chicago" and read Exploring Our Country pages 246-249 in order to discover the city of Chicago Sandburg speaks of so highly. (9,3)	"Chicago" by Carl Sandburg Exploring Our Country Author: Hamer, Follett Pub:Follet Pub:
2. Students will use resource books to read about 1 of 3 famous city planners. (Fuller, Wright, L,Enfant) (3)	This Is Our Land Author:Patterson, Hunnicutt Pub: The L.W. Singer Co. Encyclopedias
3. Students will complete a ditto concerning city - problems and solutions. (9,8)	Ditto on city problems

C. Science Activities

1. The students will draw or diagram and explain their own invention which would cure a particular city problem. (5)	
2. The students will complete a ditto on Pollution problems and solutions. (9,5)	Ditto on Pollution
3. Using a city telephone directory, the students will look up their own names and find how many people have same name as their own. As a comparison, using the State College directory, the students will look up their own names and find how many people have the same name. (9)	City directory State College directory

Level 6

Phase 2 (1 week) - Forest and Field

Several copies of:

I. Instructional Book Strand
Using the following books students will choose one: Rabbit Hill, Summer of the Swans, Return to Gone Away, The Tough Winter. (10,3)

Rabbit Hill
Author: Robert Lawson
Pub:Viking Press
Summer of the Swans
Author: Betsy Byars
Pub: Viking Press
Return to Gone Away
Author: Elizabeth Enright
Pub: Harcourt
The Tough Winter
Author: Robert Lawson
Pub: Viking Press

A. Language Arts Activities

1. Research Center

a. Each student will complete a study guide sheet which asks questions for comprehension, application of ecology, analysis of book's ending and application to own background and word meanings. (5,8)

Study guide and comprehension sheet to accompany each Instructional Book

b. Students will read one of three Reader's Digest Skill Builder articles and answer questions selected by the teacher. (3,10,5,7)

Reader's Digest
6^1 p.135 "The Wonder of Wood"
Ex.part 1-Rem. Facts
Part 3-Increase Word Power
6^2 p.130 "The Tillhanhook Inferno"
Ex. - Part 2
Reading for para. Meaning
Part 3 - Skimming to find answers
6^1 p.100 "Birth of a Volcano"
Ex.-Part 2
Ten descriptive phrases
Part 3 - Increase Word Power

c. Formal English teaching will be taught independently as teacher identifies improper English Usage in daily writing assignments. (8)

d. As a creative writing lesson, the students will view the movie "Hunter in the Forest" and either write a story or a script of what they see. (5,8,2)

Movie, "Hunter in the Forest"

2. Spelling Center

a. Students will complete #3 skills sheet using 21 vocabulary words comprising ecology terms and take test on words at end of the week. Skills to be taught are:
1. Root words
2. Parts of speech
3. Suffixes
4. Syllables
5. Writing a short story using as many words as possible from spelling list. (6,8)

Spelling skills sheet #3

3. Poetry Center
   a. Students will read a teacher prepared booklet of nature poems and analyze and list these poems as descriptive of nature, praising nature, or comparing nature with man.
   b. Students will write a poem describing a part of nature.
   c. Students will write a poem praising nature.
   d. Students will discuss the form and subject of the Haiku form of poetry, writing two Haiku poems.
   e. Students will choose at least one of their poems to read to the rest of the class. (3,5,8,1,4,2)

Poetry ditto

B. Social Studies Activities
   1. Students will research and write a report on one way Pennsylvania uses its land or forest resources. Report length should be 1½ sides and a bibliography is required. (9,8)
   2. Students will research and write a short (1 side) report on any magazine article dealing with ecology and development of the land. (8,9)
   3. Students will play a game, "Convince" in which pupil or teacher will select an ecological topic and pupils will be on opposite sides to debate and convince the other party of their side's argument. (1,2)

The Pennsylvania Story
Author: Marjory Ruth and Muriel
Pub: Franklin and Supply Co.
Your Pennsylvania, New Edition
Author: Lucille Wallower
Pub: Penns Valley
Enchantment of America
Author: Alan Carpenter
Pub: Children's Press
Town and Gown
May, 1972
"A Letter From a Farmer"
"A Letter From a Layman"
Game: "Convince"

C. Science Activities
   1. Pupils will take a nature walk, discussing what they see and what requirements there are Outside Center. (1,2)
   2. Using a 1 foot open square, pupils will examine a square foot of rendomly selected woods areas, making a drawing and written description of what they see.
   3. Using the same one foot open square, the students will examine a section of a tree trunk, making a rubbing, writing a description of what they see and using resource books to identify the tree they are observing. (8,9)
   4. Each student will make an individual terrarium following written directions given by the teacher. (3,5)

Plant Explorer
Author:Beryl Williams
Pub: Messner
A Tree Is a Plant
Author: Bulla
Trees
Author: M Cormask
Pub: Watts
Plants
Author:Glenn Blough
Pub:McGraw
Plants
Author:A.Miner
Pub:Children'sPress
Large Jars

Level VI
Phase IV (1 week) Animals

Materials

I. Instructional Book Strand
Using the following books students will choose one: Outlaw Red, Misty of Chinco (10,3), Rascal.

several copies of: Outlaw Red
Author: Jim Kuelgard
Misty of Chinco
teague
Author: Marguerite Henry
Rascal
Author: Sterlin North

A. Language Arts Activities
1. Research Center
a. Each student will complete a study-guide sheet asking questions for comprehension, analysis of books endings and application of ecology. (8,5)

Reader's Digest 6^1 p.25 "The Crafty Coyote
Ex. Part 1-Comp. Part 4
Increase Word Power 6^1 p.47 "Sentinels of the Wilds"
Ex-Part I

b. Students will read two of Reader's Digest Skill builder articles and answer questions selected by the teacher. (10,3,5)

Part 4-Increase Word power 6^1 p.94 "Old Man Buffalo"
Ex-Part 2-Putting Facts Together"
Part 3-Increase Word Power 6^2 p.88 "Heroes of the Animal World."

c. Formal English teaching will be taught as need arises.

2. Spelling Center
a. Students will complete #A skills sheet using 20 vocabulary words comprising ecology terms and take test on words at end of the week.
Skills to be taught are:
1. Syllables
2. Prefixes
3. Parts of speech
4. Word meaning
5. Writing a short story using as many words as possible from spelling list.
6. Oral book presentations 4-2

Ex.-Part 2 Cause and Result
Part A-Correct Meaning 6^3 p.55 "Mysteries of the Salmaon"
Ex-Part 3-Remembering Facts
Part 4-Correct Word Choose

Spelling Skills

Sheet #4

Materials

Phase IV (1 week) Animals (cont'd)

3. Creative Writing Center
   a. Student will make up 3 new names for animals and write short descriptions. (8)

   b. Student will write a haiku including the mention of an animal. (8)

   c. Student will write a poem, rhyme or limirick about one of his made up animals. (8)
   d. Students will write a story about pictures of cats in two different environments. (8$_1$)

B. Social Studies and Science Center
   1. Students will research and write a report on one animal that has become extinct and man's effect on this animal's extinction.

   2. Students will begin study of newspaper and what makes news (8)

C. Art Center
   1. Student will draw pictures of three made up animals.

<u>The Moment of Wonder</u>
Author: Richard Lewis
<u>In A Spring Garden</u>
Author: Richard Lewis
<u>Cricket Songs</u>
Author: Harry Behn

<u>Wildlife</u>
Author: Robert Gray
<u>Wild Animals I Have Known</u>
Author: Ernest Thompson Seton

Level VI
Phase V (1 Week) Water and Air

A. Language Arts Activities
   1. Research Center
      a. Student will choose a book about air or water, tell what is happening to this resource and give a solution. (10,9,8)
      b. Student will read two Reader's Digest Skill Builder articles and answer questions selected by the teacher. (3,5)

<u>Reader's Digest</u>
6^1 p.4 "Blue River In The Sea" Ex-Part 2 Finding Paragraph Part 4-Increase Word Power 6^2 p.100 "The Dark Violence of the Atlantic" Ex-Part 2 Remembering Facts Part 3 Increase Word Power

Materials

Phase V (1 week) Water and Air(cont'd)

2. Spelling Center
   a. Student will complete #5 skills sheet using 20 vocabulary words comprising ecology terms and take test at end of week. Skills to be taught are: — Spelling Skills Sheet #5
      1. Prefixes
      2. Pronunciation
      3. Word Meaning
      4. Syllables
      5. Write short story using as many words as possible from spelling list.
3. Creative Writing
   a. The student will write a poem describing what will happen to plants and animals if air and water pollution continues. (8)
   b. The student will make a crossword puzzle using as many ecology terms as possible.
   c. The student will write a 'whopper' story using list of words made up by teacher. (8)

B. Social Studies and Science Center
   1. Students will hold a panel discussion and debate the pros and cons of what man has done to his environment. (1,2)
   2. Students will continue on writing of newspaper.

C. Art Center
   1. Student will make an ecology cartoon.
   2. Student will draw two pictures; one showing how it will look if pollution continues and one showing how it will look if pollution is stopped.
   3. Student will make ecology advertisements for paper.

Level VI
Phase VI (week) Culmination

A. Language Art Activities
   1. Spelling Center
      a. Student will complete #6 skills sheet using 20 vocabulary words comprising ecology terms and take test at end of week. Skills to be taught are:
         1. Suffixes
         2. Accents
         3. Parts of Speech
         4. Syllables
         5. Write short story using as many words as possible from spelling list.
   2. Creative Writing
      a. Student will write a paper expressing his feelings about ecology and what he thinks he can do to help stop pollution. (8)
      b. Student will write a poem about how man is changing the environment of a plant or animal.(8)

Materials

Phase VI (1 week)

c. Student will pretend he is a seed and tell how it feels to start growing in spring in polluted area and clean area and read to class. (1,2,8)

B. Social Studies and Science Center

1. Students will dramatize a trial in which people are guilty of poor conservation practices.
2. Students will finish newspaper with inclusion of ecology stories.
3. Students will see filmstrip "The Great Lakes Causes of Pollution" and discuss afterwards. (1,2)

Filmstrip "The Great Lakes Causes of Pollution"

Level 2 - Ecology Unit
Low Intermediate

Materials

Week 1 - Introduction

I. Instructional Book
   A. For chapters 1 and 2, write definitions for the vocabulary words. L.A. 9
      1. review vocabulary as a group - L.A.7
      2. teach word analysis in this review - L.A.6
   B. Read chapters 1 and 2 orally or silently so that each group reads orally three times each week. L.A.3,4
   C. For chapters 1 and 2 write answers to comprehension questions after reading the chapters. L.A.5

Wide Horizons "Cricket in Times Square"

vocabulary sheet

Question sheet

II. Supplementary Materials
   A. Cry of the Marsh
      1. Give one word reaction to the movie. L.A.1
      2. Tell what happened. L.A.1
      3. Discuss what was missing.
      4. Discuss what was not considered in your first reaction.
   B. First Follow Nature
      1. Read Leisure as a choral reading. L.A. 1,4
      2. Discuss definitions of environment.
      3. Read pp 3 and 4. L.A.3
      4. Take a walk and look for natural and man-made things. List these in the diary. L.A.8

Film:"Cry of the Marsh"

First Follow Nature - pp 1,2, 3,4,5,6

III. Teacher Generated Materials
   A. Spelling Center - the lists will be taken from the weeks theme with skills taken from the last six units of the 4th and 5th grade text.
      1. Do stations 1 - 4 using ecology words and story.
         a. Station 1 - underline spelling words in story.
         b. Copy your word list. - Station 2
         c. Fill in the blanks in the story. - Station 3
         d. Unscramble the words. - Station 4
      2. Using the tray made at the art center review your words.
   B. Art Center
      1. Make a spelling anagram set and tray.
      2. Make a drawing to define the word ecology. (this activity is to be repeated at the conclusion of the unit for evaluation)
      3. Make a notebook to be used for the entire unit.

Stations #1,2,3,4

Direction Card #1,2,3,4

Key #1,2,3,4

Spelling tray

Paper
Paper strips - 40 per child
Magic marker
Manilla paper

   C. Leisure Time Center
      1. America the Beautiful and America the Ugly picture boxes for "looking". L.A.9
      2. Activity Box (this box includes 15-20 activities - one of which may be selected by the children.) L.A.8,9,10

America the Beautiful Box

America the Ugly Box

Activity Box

IV. Student Generated Material

Materials

A. Make a list of the things you do for a 24 hour period.
   1. Mark the things or activities you needed.
   2. Mark the things or activities you wanted.
   3. Trace as many of either as resources.

B. Write an ad of 15 words or less - L.A.8
   1. Ads will be posted and voted on by the class.
   2. The winner takes ad to the office for mailing.

Form from "Penna. Mirror"

C. Additional Information - Students asked to do a skit which ended with one of the characters asking the children to clean the room.

Level 2 - Ecology Unit
Intermediate

Week II Cities

Materials

I. Instructional Book
   A. For chapters 3 and 4, write definitions for the vocabulary words. L.A.9
   B. Read chapters 3 and 4 orally or silently so that each group reads orally three times each week. L.A.3,4
   C. For chapters 3 and 4 write answers to comprehension questions after reading the chapters. L.A. 5

Wide Horizons
"Cricket in Times Square" chap. 3 and 4
vocabulary sheet Chap. 3 and 4

II. Supplementary Materials
   A. Cleantown U.S.A.
      1. Define recycling.
      2. List orally what was recycled. L.A.1
      3. Discuss problems of recycling.
      4. Examples in State College

Film:
"Cleantown U.S.A."

   B. Bulldozed America - impact was so great a spontaneous discussion followed.

Film:
"Bulldozed America"

   C. Roots of our Urban Problems
      1. View and listen.
      2. Fill in work sheet. L.A.8

Record and Filmstrip:
"Roots of Our Urban Problems"
Worksheet

III. Teacher Generated Material
   A. Spelling Center - words from city theme and skills from 4th and 5th spelling text.
      1. Do stations 1 - 4.
         a. #1 Word list - write each word three times.
         b. #2 Underline spelling words in story.
         c. #3 - L.A. 6
         d. #4 Write paragraph.
      2. Use spelling tray for daily review.

Stations #1,2,3,4

   B. Telephone Center - L.A.9
      1. List people under your last name - any directory.
      2. List number of hospitals in Harrisburg.
      3. List 3 public schools in the Bronx.
      4. Tell to call James Eby in Dayton, Ohio - direct dial.
      5. Nos. of specific department stores in Pittsburgh, Dayton, and Washington, D.C.
      6. Make a chart of dos and don'ts for use of the telephone.

Directions Block
Directories:
Dayton, Ohio
Harrisburg
Pittsburgh
Bronx
Washington, D.C.

   C. Language Arts Center - study pages 87-93 in "Our Language Today"
      1. Study p 93 - Write a letter to one of the major industries and ask what they are doing about pollution.
      2. Or write a letter to a local company and ask them what they are doing about pollution.
      3. Study p 88. Write a letter to a friend who lives in a city and ask what some of their city's problems are.

Our Language Today
pp 87-93

Directions Block

   D. Read Sidewalk Story to children.

Sidewalk Story

Materials

D. Art Center - Individually or in groups, design building for a city silhouette for the bulletin board.
gray paper
magic marker - black

E. Poetry Lists - L.A. 1,3,4
Use for choral reading.
I Live in the City
Tippett

IV. Student Generated Materials

A. Make a game from trash
   1. games to be completed by Friday.
   2. To be shared with class after lunch.

B. Write ads as described in Week 1. L.A.8
   1. Choose best -
   2. Winner mails from office.
Form from "Penna. Mirror"

Level 2 - Ecology Unit
Intermediate

Week 3 - Forest and Field

Materials

I. Instructional Book
   A. For chapters 5 and 6 write definitions for vocabulary words. L.A. 9
      1. Review vocabulary as a group. L.A.7
      2. Teach word analysis in this review. L.A.6
   B. Read chapters 5 and 6 orally or silently so that each group reads orally three times each week. L.A. 3,4
   C. For chapters 5 and 6 write answers to comprehension questions after reading the chapters. L.A.5

Wide Horizons "Circket in Times Square" chap. 5 and 6

vocabulary sheet

question sheet

II. Supplementary Materials
   A. Filmstrips - Grasslands and How Man has Destroyed Grasslands.
   B. Filmstrips - Lowland Forests and How Man Has Destroyed Lowland Forests.
   C. Filmstrip - How Man Has Destroyed Marshes
   D. Green is for Growing - Read to children daily.
   E. Tale of a Wood - Read daily L.A.2

Filmstrips:
Grasslands
How man has destroyed grasslands
Lowland Forest
How Man has destroyed Lowland Forests
Marsh
How man has destroyed Marshes
Green is for Growing - Lubell
Tale of a Wood
Kane

III. Teacher Generated Material
   A. Spelling Center
      1. Write each word 3 times.
      2. Use each word in a sentence - look up any words you do not know. L.A.9
      3. Make up a scrambled word card.
   B. Art Center - make woods scene for bulletin board.
   C. Lecture on forest layers.
      1. Pictures of layers
      2. Outlines on board of layers and content.
   D. Poems on Woods for choral reading.

Stations #1,2,3

Pictures of Wood layers

Poems - Woods

IV. Student Generated Materials
   A. Sit in the woods for 15 minutes.
      1. Observe all you hear and see. L.A.2
      2. List as many things as you can. L.A.8
   B. Write ad for newspaper.
   C. Additional Information
      1. Games continued to come in.
      2. Children continually brought in news articles about recycling and pollution. L.A.8

Ad from Penna. Mirror

Week 4 - ANIMALS

I. Instruction Book
- A. For chapters 7 and 8 write definitions for vocabulary words. L.A.9 — Wide Horizons "Cricket in Times Square"
  - 1. review vocabulary as a group - L.A.7
  - 2. teach word analysis in this review - L.A.6
- B. Read chapters 7 and 8 orally or silently so each group reads orally three times each week. - L.A. 3,4 — vocabulary sheet
- C. For chapters 7 and 8 write answers to comprehension questions after reading the chapters. - L.A.5 — question sheet

II. Supplementary Materials — Film: "Cry of the Loon"
- A. "Cry of the Loon"
  - 1. have children write short play - L.A.8
  - 2. make paper bag puppets
  - 3. present play to class
- B. Play tape, "Ecology Predator Prey", and pass out worksheets. — Tape - TR - 405
  - 1. listen to tape
  - 2. fill in worksheets
  - 3. discuss
- C. "The Hunter" — Film: "The Hunter"
  - 1. discuss sequence of events - L.A.1
  - 2. write a paragraph telling why the hunter did what he did - L.A.8

III. Teacher Generated Materials
- A. Spelling center - L.A. 6,7,8 — Stations#1,2,3
  - 1. write each word three times
  - 2. word analysis
    - a. prefix
    - b. plurals
    - c. possessives
    - d. homonyms
    - e. phonics
  - 3. Write a paragraph showing concern for animals.
- B. Language Arts
  - 1. review pages 88 and 93 — Our Language Today
  - 2. test
    - a. cut out parts on ditto
    - b. paste business or friendly letter parts together and mark — ditto, scissors paste, art paper
- C. Art Center
  - 1. fingerprint picture — colored poster board, black pen, stamp pad
    - a. sketch animal scene on cardboard
    - b. fill in bodies of animals with fingerprints
  - 2. hand shadows
    - a. set up filmstrip projector — Hand Shadows, Bursill
    - b. let children make animal shadows
- D. Read to children - L.A.2
  - 1. How Animals Sleep — How Animals Sleep Selsam
  - 2. Poetry
    - a. let children pick favorites — "The Owl", "The Eagle"
    - b. use for choral reading

A. National Wildlife Magazines - share in free reading time.
B. Continue ad writing — Pennsylvania Mirror
   1. each write ad — ad form
   2. winner takes to office

Week 5 - - AIR POLLUTION

I. Instruction Book — Wide Horizons
   A. Read introduction and Big Tree and Sandburg's "Short Talk on Poetry." — p. 210-211; p. 13 - 17; "Big Tree"
      1. children will discuss meaning of poetry
      2. children will write a discussion of whether or not introduction is poetry - L.A.8 — question sheet
   B. Read chapters 1,2,3, and 4. L.A. 3,4
   C. For chapters 1,2,3, and 4 answer comprehension questions. L.A.5

II. Supplementary Materials
   A. Filmstrip and record - "The Air Pollution Menace." — Singer F.S. #121 Record A 202 - R.R.
      1. listen and watch
      2. fill in worksheets — Worksheet
      3. discuss cost - life v. money
   B. Show air pollution films.

III. Teacher Generated Materials
   A. Spelling center — Station #1,2,3,4
      1. alphabetical order - L.A.9
      2. write each word — Extra credit
      3. look up five words and write definitions - L.A.9
      4. write a paragraph - L. A.8
      5. for extra credit study days of the week.
   B. Read aloud Shuttlesworth
      1. Read examples of air pollution to illustrate universality or problem. — Clean Air, Sparkling Water Shuttlesworth
         a. New York
         b. Tokyo
         c. Donora
         d. London
      2. Discuss how one city's pollution affects another.
   C. Play rhyme games - L.A. 2,6,8 — Rhyming Word Games Wertenbaker and Gleaves
      1. Form house with rhyming words.
      2. Form man with rhyming words.
   D. Poetry for Choral Reading — poetry sheet "Fog" "The Wind"
      1. "Fog"
      2. "The Wind"

IV. Student Generated Material — Pennsylvania Mirror
   A. Write ad for the week. — ad form

Week - WATER POLLUTION

I. Instructional Book - L.A. 3,4,5
   A. Read chapters 5,6,7,8 — Wide Horizons, "Big Tree"
   B. Answer comprehension questions. — question sheet

II. Supplementary Materials
   A. Show filmstrip, "Great Lakes II". Pollution
      1. What are the causes of water pollution?
      2. What are the results of water pollution?
         a. effect on water life
         b. effect on recreation — TR - 822
   B. Play tape, "Stopping Water Pollution". — "Stopping Water Pollution"
      1. What can you do to stop pollution?
      2. Can we really "boycott" products from companies that pollute?
   C. Film loops — Filmloops:
      1. Water Cycle — CSU - 8-253
      2. Surface and Sub-Surface Street — CSU - 8-247
   D. Show filmstrip, "Water and It's Conservation". — Filmstrip: C-80 "Water and Its Conservation"
      1. What does conservation mean?
      2. How can we conserve water?

III. Teacher Generated Materials
   A. Spelling Center — Stations #1,2,3,4,5,6 Extra credit
      1. Write each word three times.
      2. Draw pictures and label, cloud shapes.
      3. Homonyms and suffixes. L.A.6
      4. Write sentences. - L.A. 8
      5. Study months for extra credit.
      6. Write paragraph telling why water pollution is important.-L.A. 8
   B. Rhyming Games - continue orally. L.A.2 — Rhyming Word Games Lael Wertenbaker, Suzanne Gleaves
   C. Poetry - Choral Reading L.A.1 — Poetry,
      1. "Tides" — "Tides"
      2. "Islands" — "Island's"
      3. "If Once You Have Slept on an Island" — "If Once You Have Slept on an Island"

IV. Student Generated Materials
   A. Washington Report
      1. Child shows cards.
      2. Relates unit study to Potomac pollution and Washington city problems.
   B. Write ecology ad — Pennsylvania Mirror ad form
      1. Write ads.
      2. Winner takes to office.
      3. Student shares ads he designed.

Week 7 - Culmination

I. Instructional Book
   A. Read chapters 9 and 10. L.A. 3,4
   B. Answer comprehension questions orally. L. A. 9

II. Teacher Generated Material
   A. Spelling Games
      1. Spelling relay
      2. Categorizing game
   B. Rhyming Games

III. Student Generated Material
   A. Write personal ecology pledge.
   B. Write an ecology poem.
   C. Write an ad collectively.
      1. Use SUICIDE format.
      2. Collect for cost of ad.

RELATED ACTIVITIES

Concepts for CITY Unit - Related Activities

1. Man has had cities since the first civilization.
2. All this is in a city can be divided into general categories.
3. Cities contain good and bad features of life.
4. Cities have special problems - slums, air pollution, solid waste disposal, and traffic jams.
5. Most cities were not planned; they just grew.
6. All kinds of housing exist in a city, but there is constant change and renewal.
7. Cities can be planned to help eliminate their special problems.

Related Activities

THE CITY

Introduction (Discussion)

1. What is a city?
2. Who has ever lived in a city?
3. Who has ever visited a city?
4. What is in a city? What kinds of things and activity is found there?

Group Work

1. Break into groups randomly chosen by the teacher to write down what they think is in a city, with special lists of good and bad things in a city.
2. Groups orally or on the board will present lists for class discussion.
3. Students will compare lists with general categories set by teacher:
   a. Housing
   b. Transportation
   c. Employment
   d. Shopping
   e. Recreation
   f. Government Services
   g. People

   If students find something they wish to add, they may (example: communication, culture). (2,3)

Impressions of a City

1. Students will write their own ideas.
2. Students will draw a picture to illustrate ideas.(3)

Filmstrip: Man, Builder of Cities
(History of the cities)

1. Discussion during and after presentation.
2. Use of world map to review areas presented in filmstrip.
3. Use of baord drawing to show how waterways affected growth of the cities because of economics and ease of travel. (1)

Slides: Problems of the Cities
(Urban slum problems)

1. Discussion during and after slides. (4)

Log Writing - topic: What I Have Learned, and Want to Learn About the City

Folder Drawing

1. Pupil's idea of a future city.(7)

Filmstrips

1. The Transportation Crisis
2. The Housing Crisis

   Discussion after presentation. (4)

Movie: Cleantown U.S.A. (West Penn)

1. Discussion - Can the city be saved? (7)

Random Design Art Lesson

Students will divide 8x10 paper into 2 in. squares. Using three colors of paper, the students will decide on 3 kinds of designs (triangle, square, etc.) Flipping a 3 sided paper to show which design pupils will put colored designs into squares on paper. Have students put designs together on bulletin board.

Announce: "You have just designed a City." One color stands for housing, one for industry, one for recreation and shopping. This is how our cities developed. (5)

How Cities Grew

1. Lecture - discussion using overhead projector.
   a. Log Cabin
   b. Farm
   c. Houses around farm
   d. Town on farmland
   e. Row houses
   f. Detached and semi-detached houses
   g. Apartments in old houses
   h. Specially built apartments
      Concept: All kinds of housing exist in the city at some time, but constant change, some coming down as new ones are built.
2. Present idea of grid-iron plan for city planning.
3. Discussion of the city planner and his job.
4. New Town, linear planning, greenbelt planning and renewal discussed. (6)

Art Work

Pupils will draw a city scene of a city today of not more than 2 buildings. Group all students into a hollow square, facing out.

Announce: "You are a city block."
Face pupils in to see results of a block randomly planned. (5)

Bulletin Board

Flat and solid shapes
Discussion: Flat shapes for drawing, solid shapes for constructing.

Film: <u>"A" Is For Architecture</u>

Discuss and review use of solid geometric shapes to show possibilities of setting up a city. (6,1,3)

Slides: <u>New York City</u>

Discuss size and concept of straight-up planning.

Preliminary Field Trips on Foot Through Park Forest Village

Introduction and experimentation or use of camera and tape recorder. Plan for group partners. (6)

Field Trip by Bus to Downtown State College

1. North Atherton Street
   a. Concept of linear planning
   b. Businesses along roads and homes clustered behind, but not too far a distance from the road.
2. Park Avenue
   a. Older homes converted to apartments
   b. University buildings as modern apartments and offices
   c. East Halls as a city - within - a city complex
3. Toftrees
   a. As a new town
4. University, down Garner
   a. Apartments and offices
5. Walk up Heister Street
   a. Parking lots
   b. Pattern of old houses among new (Fraternity and Beaver Terrace Apartments)

6. Walk down Beaver Avenue
   a. Government at work
   b. New buildings going up as example of urban renewal
   c. Parking garage as answer to parking problems
7. Walk down Allen Street
   a. Shopping center area
8. Walk down College Avenue
   a. Contrast Hammond Building as a city complex to small shops on College Avenue
9. Walk down Fraser Street
   a. City services
      (1.) Fire and Police
      (2.) City Hall
10. Appointment with State College Planner at Municipal Building (2,3,4,5,6,7)

Discussion of Trip

Construction of a City following an opaque projector presentation of pictures showing new architecture and planning together. A culmination of ideas presented and observed. (7)

Field Trip Evaluation: THE CITY

Busing through the area and a walking tour through downtown State College are essential to this unit.

Pupils most likely have been to most of the places previous to the field trip. But after classroom study they are able to look at State College with a different and more knowledgeable point of view.

Class room study and activities are brought to reality. Watching traffic at College Avenue and Allen Street makes the idea of a traffic jam much more reasonable, smelling the air at the same location shows how cars pollute the air, and so on.

Unit: A Study of Ecology

Related Activities Section: ANIMALS

I. There is a relationship and interdependence between plants and animals and their habitat.

A. Biome map of United States

1. Draw large map of United States on Bulletin Board
2. Form committees for each biome area.
   a. Forests
   b. Grasslands
   c. Hot deserts
   d. Cold deserts
   e. Mountains
   f. Coastline
3. Committee will read of their biome and take notes on plants and animals and problems of that area.
4. Each committee will draw pictures of the plants, birds, and animals living in their biome and staple to map.
5. Dangers to habitats will be written on cards, mounted on red paper and attached to side of map with string connected to biome area.

Roll - paper
Opague projector
Copy of U.S. map

ECOLOGY: Grossman

B. Biome areas of World

1. Make lid-pictures
2. Depict a biome scene showing birds, animals, fish, and plants of that area.

Ecology - Book C
Weekly Reader
Box lids or sheets of oak tag with corners folded
Construction paper

C. Web of Life ditto on Prairie Food Chain

1. Pictures of Prairie animals
2. Student draws lines from each feeder (animals) to the food he feeds on.

Ecology - Book B
AEP (Weekly Reader)

D. Predators

1. Students listen to tape and fill out accompanying ditto on predators and prey

Ecology: Predator and Prey

E. Read and discuss man's disturbance and restoration of an ecosystem (otter, sea urchin, kelp)

As We Live and Breathe
National Geographic page 50

F. Commensualism

1. Students can illustrate animals, birds, insects showing partnership arrangements

Partners in Nature
Dudley
Unusual Partners
Silverstein

G. Filmstrips

"Interdependence of Plants and Animals"
"Life Cycle of an Animal"
"Animal Habitats"

H. Film

Related Activities: ANIMALS (page 2)

II. Man's changing needs have affected plants and animal habitats

A. Transparencies with discussion
   1. Man has disturbed wildlife
   2. Man has helped wildlife

"Man's Change From Food Hunter to Food Producer"
"More People Need More Food"
"We Sometimes Damage Wildlife Habitat"

B. Read:
   1. "Why Harm Those Who Tiptoe"
   2. "Should we Protect Predators"
   3. "Things are Changing"

ECOLOGY Book A (Weekly Reader)
ECOLOGY Book B
ECOLOGY Book B

III. Plants and animals have adapted to their survival needs and environment.

A. Since man does not have the adaptations of birds, animals, and fish, he has made tools
   1. Show some man-made tools and discuss what uses man makes of them.

People and Their Environment (Grades 4-5)
Smooth edge knife
Saw-edge knife
Hammer
Comb
Scissors
Needle
Bobby pin
Fork
Pencil

B. Discuss some special adaptations such as beaver's tail, woodpecker's beak, squirrel's teeth.
   1. Discuss man's use of these adaptations
      Questions:
      "The study of what animal helped man learn to fly?"
      "What swimming equipment might have been inspired by observing fish?"
      "How are airplanes like birds in structure?"
      "The study of what animal helped man design radar?"

C. Match game
   1. Beaks
      Students match drawings of different types of beaks with a) listed birds and b) listed uses
   2. Feet
      Students match drawings of different types of bird feet with a) listed birds and b) listed uses

People and Their Environment
Ditto worksheets
All Kinds of Legs Russell
Birds and Their Beaks Earle

D. Filmstrips
   "Everything Changes"
   "How Adaptation Helps Living Things Survive"

"Adaptations in Plant"
"Desert Plants and Animals"
"Natures Disguises"
"How Nature Protects Animals"

E. Film

IV. Animals, fish, and birds have become extinct or are endangered because of man's disturbance of their habitat or overuse of their resource for his needs.

A. "Museum Scenes"
   1. Students can construct dioramas with clay, carved wood, or paper mache animals shown in their habitat.

Clay, newspaper strips, wheat paste, paint, construction paper

B. Box animals
   1. Boxes of different sizes (depending on animal size) act as a support to an animal drawing and its surrounding habitat

Packing boxes, milk cartons, kleenex boxes, etc.
Construction paper
glue

C. Game "Who Am I?"
   1. Cards with name of extinct or endangered bird, animal or fish, it's locale, description, and reason why it is endangered.
   2. Dittoes information sheet from which to base questions.
   3. A card is taped to the back of each student. Using ditto sheet, he is allowed to ask 5 questions of other students to find out who he is to be a winner. (Must continue to ask questions until he knows who he is) Other children answer questions by yes or no by referring to card on questioner's back.

5x8 index cards
Dittoes information sheets

D. Teacher reads of endangered animals to class each day.

Wildlife in Danger
Pinney
Children of the Ark
Gray
America's Endanger-ed Wildlife
Laycock

E. Field trip - University Deer Pens
   1. Introductory activities
      a. Speaker: Mike Ondik
      b. Read to class about the White tailed deer

The World of the White Tailed Deer
Rue III

F. Filmstrips

"Vanishing Species"
N.Y.Times
The Vanishing Prairie series
"Prairie Dogs"
"The Mountain Lion"
"Coyotes and Other Prairie Animals"
"American Buffalo"
"Birds of the Prairie"
"Animal Protection"
"Animal Speeds"
"Reindeer Herding in Lapland"

G. Film loops

H. Students can design "Save Our Wildlife" stamps

Colored pencils
Magic markers
Adhesive backed paper

Related Activities: ANIMALS (page 4)

V. Animals differ in needs and habits

A. Read for information

1. Observation assignment - Look at tulips, daffodils, dandelions in early morning and again in evening.

Reader's Digest Skill Builder Level: "Sentinels of the Wild" Part 6 (1)

Reader's Digest Science Reader (Green) "How Nature Beats the Cold"
ECOLOGY - Book B "What's the Time"

Animals in Winter Bancroft
After the Sun Goes Down Blough

Strange World of Animal Senses Cosgrove

B. Sleeping habits

1. Bulletin Board of "peep" pictures
   a. Hole in picture cover shows animal or bird head. When cover is lifted one seed how that animal or bird sleeps.

How Animals Sleep

Construction Paper

C. Animal Tracks

1. Students make their own "Animal Track Guide Book"

Paper for booklet folded to 4"x5"

Ranger Rick Magazine Jan. 1972

D. Draw pictures for patterns or construct bird and animal feeding stations.

E. Take notes on types of food different animals and birds eat to place in feeding stations.

F. Practice noises that attract birds and animals

1. Kissing back of hand ("Squeaking")
2. Cupping hands and blowing for hollow sound (owls and pigeons)
3. Blade of grass between thumbs of cupped hands

Field Book of Nature Activities and Conservation

G. Discuss precautions and proper dress for walking through the woods

VI. To develop interest in and proper procedure for studying ones natural surroundings

A. Study one small area of nearby woods (a yard square) and slowly and carefully examine perhaps with magnifying glass all that one can see.

B. An "Ecology Hunt"
Ditto of items to look for in nearby woods.
"Our Indian Chief has not slept for 20 nights. The Witch doctor of our tribe has promised to cure him with his famous sleeping brew, but needs your help. Find and identify the following ingredients within one hour from the moment you read this:

1. 10 Dandelion seeds
2. 3 different tree leaves
3. 2 different pine ground covers
4. 1 gall
5. 1 wild flower
6. 1 toad

etc.

Ditto for each child

Water Pollution - POND

Materials

I. Related Activities

A. What is water pollution?

1. See the filmstrip, "Water Pollution - A Complex Problem" and fill in worksheet. Discuss the filmstrip.
2. Hear the tape, "Understanding Water Pollution." Complete worksheets as the tape instructs. Discuss pollution terms for clarification.
3. Emphasize the phrase from the tape, "We have met the enemy and they are us." Discuss its original use. Have the children make a water pollution poster using this phrase or an original.

Filmstrip: "Water Pollution- A Complex Problem"

record and worksheet

Wollensac tape "Understanding Water Pollution"
Worksheets
poster paper
crayons
magic markers
colored paper
scissors
glue

B. What is a food chain?

1. Display the poster diagram and have children trace the food chain as well as possible.
2. Introduce the term food chain as a flow of energy from one organism to another. Pass our dittos illustrating a pond food chain. See how they link.
   a. Ask, "What happens if all of one animal (or plant) die?" Be sure the children see the dependency of one organism on another.
   b. Ask, "Why is the diagram somewhat faulty?" Be sure the children see that an animal is not necessarily dependent on only <u>one</u> other animal.
3. Pass out dittos of a pond food web. Discuss why this seems to be a more realistic outlook.
   a. Ask, "What one item seems to be the <u>most</u> basic for life?" The <u>producers</u> such as green algae are the form of life which make their own food and supply energy for organisms which cannot produce food.
   b. Introduce the terms <u>first-order consumers</u> and <u>second-order consumers</u>. Point out examples of each.
   c. Discuss the <u>decomposers</u> and their function in the food chain or web.
4. Write definitions for each of the following:
   a. producers
   b. first-order consumers
   c. second-order consumers
   d. decomposers
5. Pass out dittos of a food pyramid which illustrates lost energy as the reason for so many tiny plants and animals in comparison to larger animals.

large poster diagram from <u>The Life of the Pond</u>, by William Amos, p. 24
Diagrams from <u>Ecology The Circle of Life</u>, by Harold R. Hungerford, pp 39,41,42

C. What is a pond?
   1. Ask the children what their impressions of a pond are.
   2. Read from Ecology: The Freshwaters and Man about new ponds changing to old ponds.
   3. Introduce the term succession.

D. What kind of life is typical of a pond?
   1. Hear tape, "Habitat: General Marine", and place cut-outs of animals on worksheet. Pay careful attention to the freshwater (pond) biome.
   2. Read about the variety of insects in a pond.
   3. Show pictures that illustrate the types of life the children will see.
   4. Make and bring in equipment for pond field trip.
      a. construct a flat-bottomed net
      b. construct a plankton net
      c. make milk carton trays
      Make microscopes available for identification of microscopic life.
   5. Have the children collect as many forms of life on the pond trip as possible. Then they should see "The Life of the Pond" to help identify their collections.
   6. Divide class into teams and draw pictures of all forms of life. One life form per page.
   7. Use available books to identify life forms. Fill in papers which answer the following and paste to pictures.
      a. Name
      b. What it eats
      c. Color
      d. Interesting facts

Materials
Ecology: The Freshwaters and Man by George McCue, pp 26 - 30

Wollensac tape "Habitat: General Marine" and worksheets
scissors, glue
crayons
Ecology: The Freshwaters and Man by George McCue, pp 24 - 25

The Life of the Pond, by W.H.Amos, pp 98,117,118, 119,124,125,126, 147,153,154.

4-6 microscopes
muslin
coat hangers
broom handles
tape, needle
thread, strainers
elastic band
stockings
twine, tweezers
milk cartons
magnifying glass
jars
Film: "The Life of the Pond"

Insects, The Book of Natural History, By Richard M. Baranowski

National Geographic "Teeming Life of a Pond" by William H. Amos, pp274-298

The Life of the Pond, by William H. Amos

Pond Life, by William. H. Amos

Some Animals Are Very Small by Edward Lindemann

Materials

8. Make a booklet out of the pictures then have each team create a mural. Their plants and animals must be painted in the proper order i.e. producers, first-order consumers, second-order consumers. Use the booklets to construct these food chains.

Water Animals For Your Microscope, by EdwardLindeman
Water Beetles, by Dorothy Childs Hogner

E. How does water pollution affect the food chain?
   1. Read "The Deadly Delaware" to the class. What effects would the death of shad have on other forms of life?

"The Deadly Delaware" Courier-Post, Camden, N.J. May 13, 1972 pp. 2-3m

   2. Examine the murals. Discuss the possibilities if the producers were destroyed or over-grew (as in thermal pollution.) Try eliminating various life forms. What will happen?

F. What can we do about water pollution?
   1. Hear tape "Stopping Water Pollution."

Wollensac tape, "Stopping Water Pollution" Worksheets

   2. Carefully read all possible personal contributions from tape worksheets.
   3. Make a wall chart for home use of "Let's Stop Pollution".
   4. Have the children write briefly what they learned about water pollution and what they did/did not like about the unit.
   5. See the filmstrip about the Great Lakes. Discuss why we really need to do something about pollution now.

Filmstrip: "The Great Lakes Causes of Pollution"

Field Trip

Children of all ability levels enjoyed the pond field trip. It is very important for the children to be accompanied by several adults so that they may wander freely around the pond. A ratio of 1 adult/4 children would be ideal.

The children should be well-prepared with equipment and information on some of the animals and plants they are likely to see. Since some children want to keep everything they find, the class should decide before the trip begins on the quantity of animals they will take from the pond for study.

Related Activities	Materials
Air Pollution	
Contents: To promote an awareness of the air around us and our responsibilities in the use of our air.	
Activities	
A. What is Air?	
1. Blow up a balloon and let the air come out on your face. Can you see it? Can you feel it?	Balloon
2. Can we taste air? Stick out your tongue and try to taste the air.	
3. Weigh a ball deflated. Blow up the ball. Weigh it again. What happened air has weight.	Ball and scale
4. Observe outdoors-trees. What makes leaves move, etc. Air can move.	
5. Darken the room and use a flashlight to examine dust particles in the air. Air can carry small particles.	Flashlight
6. Fill tumbler with water put index card over opening and invert glass holding card over opening, observe. Air can push.	Tumbler and index card
7. Take air temperature at following levels: a. Within one inch of floor. b. Five feet above floor. c. Near ceiling. Note different readings. Warm air rises. Relate to weather.	Thermometer
8. Cold water, boiled water. Taste and compare the two samples. Boiled water tastes "flat". The dissolved air has been driven off. Cold water dissolves more air than warm water does.	Hot plate
9. Cut circle from paper, cut circle into a spiral and put thread through center. Hang over candle. Observe. Paper spiral will turn, warm air rises.	Scissors and candle
10. Attach plumbing plunger to blackboard. Have children try to pull them off. Explain that air is squeezed out of the space between the board and the plunger. Air outside the plunger is pushing it against the board. Loosen edge. Air leaking in pushes plunger away from board. Conclusion-Air pushes.	Plunger and Blackboard
B. How Do we Depend on Air? How does it affect us?	
1. We need air to breathe. Hold your breath-what happens?	
2. (plant-plastic bag)Tie plastic bag over growing plant. Observe the plants need for air. Water plant and leave in sunshine. Plants need air.	Plastic bag
3. (Beaker, candle and matches)Light a candle and cover with inverted beaker. Observe why did the candle go out? Fire requires air.	Beaker, Candle and matches

Materials

Related Activities

Air Pollution

4. (deflated playground ball) Try to play kickball with deflated ball. Blow it up and play. We use air for pleasure activities. — Deflated playground ball
5. Make sailboats-glider planes. Planes are held up by air. We use air to do work. Planes for transportation. — Sailboats and glider planes
6. Art-draw how things look on a windy day.
7. Hold your breath! Imagine that the air is full of smoke. How long could you live?

C. Determining Air Pollution

1. Coat slides with petroleum jelly. Place the slides in various locations. After a determined length of time examine slides under magnifying glass. Chart results.

LOCATION	TIME EXPOSED	DESCRIPTION OF PARTICLES	AMOUNT OF POLLUTION

2. Discuss results with the class using questions, such as, why would particles we see be bad for us. Where might they have come from? How could pollutants be controlled?
3. Hang a damp wet cloth out for a week. After a week check the cloth to see how much dust and other material has fallen on it.
4. Observe smoke stacks, car exhausts. What happens to the smoke?

D. To Provide an Awareness in the Use of Household Pollutants

1. Painting - Locate 3 large size boxes in various parts of the classroom. Divide the class into three groups. Let the children use spray cans to paint sections of the inside of the boxes. Rotate the groups so they experience painting in each of three locations. Where would you rather work? Why? — 3 boxes; Spray cans
2. Cleaning agents - Place celery stalks in various solutions of water and cleaning agents. Observe and record results. — Celery stalks; Cleaning agents

Related Activities

Materials

Air Pollution

3. Collect containers of strong cleaning agents such as ammonia, clorox or lysol. Open one of the containers, have the children note when they can smell the oder by raising their hands. How did the odor make you feel?

Ammonia
Lysol
Clorox

4. Aerosol cans - demonstrate the danger of burning aerosol cans. Ask local fire company to demonstrate burning process.

Local Fire Company

5. Food preparation - visit the school cafeteria while they are preparing the noon meal. How far does the odor travel? Have cafeteria personnel explain food storage and disposal.

6. Garbage - show the effects of mold on our environment. Have the children bring to school moldy foods from home. Discuss where molds grow and what conditions molds need to grow. Grow mold in plastic bags and adding a small amount of moisture. Place the bags in various locations around the room. Discuss the results and discuss what part air plays in helping molds to grow.

Mold
Plastic Bags
Moisture

7. Appliances - heating system as pollutant. Have the janitor explain the school heating system - how it works, type of fuel, filter location, pollution controls.

Janitor
School heating system
Type of fuel
Filter location
Pollution controls

8. Pesticides - effects of pesticides on animal life. Have the children collect several different species of insects. Place insects in containers and try spraying various types of pesticides into different containers. Note the affects of the pesticides on the various types of insects.

Species of insects

Pesticides

9. Automobiles - effects of car exhaust systems on air. Tape a three inch square of facial tissue to a piece of cardboard. Hold the collector paper parallel to the mouth of the exhaust pipe of the vehicle whose motor is running. The collector paper should be kept at a distance of six inches from the mouth of the exhaust pipe for one minute. Try to test as large a variety of vehicles as you can.

3 in. square of white facial tissue
Chart

Filter
Angel Hair
Cardboard
Vehicle

Record information about the vehicle.
a. Approximate year it was made.
b. Name the company who made it.
c. Type of vehicle.
d. Number of cylinders.
e. Type of fuel burned (regular - high test-diesel)
Repeat experiment using filter (angle hair).
Compare results.

10. Personal - To gain facts on the effects of smoking. Invite a speaker from local TB or American Cancer Society to give a talk or demonstration on the effects of smoke on lungs.

Speaker from TB or American Cancer Society

Materials

Related Activities

Air Pollution

10. cont'd
Find some statistics on the detrimental effects of smoking and make a chart or graph.

Statistics on effects of smoking.

Culmination:

1. Don't burn trash out in the open.
2. Write letters to truck and bus companies. Let them know you're concerned about the pollution their trucks and busses cause.
3. Make posters and murals to inform others, get them to think about pollution.
4. Tell dad to keep his car tuned up and in good mechanical order.
5. Take pictures of pollution being caused in your community - show others what is happening.
6. Sponsor "No Pollution Day" have a day when no one will use cars, or other sources of pollutant.
7. Draw up a list of aerosol sprays that are polluters. Ditto copies and give to parents.
8. Avoid outdoor spraying or spreading of chemicals.
9. Wirte a song about air pollution and sing it for all to hear.
10. Make a personal commitment to remember hints on how to prevent air pollution.
11. Take a research trip to the Environmental Study Center at Penn. State University to investigate experiments being done on air pollution.
12. Prepare an evaluation of all the facts you have gathered about air pollution and how it affects our daily life.

Related Activities

Materials

Running Water - Stream

Day 1

I. Concepts
   A. The beauty of water in rivers and ponds has inspired poetry, essays, and music.
   B. Man needs water for life, industry, agriculture, and recreation.
   C. Man has used water unwisely.

II. Activities

Concept A

1. Read to the children the two essays on water.
2. Read the poem - Longfellow's "The Brook" or "River Charles".
3. Play Smetana's "Moldau".
   a. Give one word reaction.
   b. How is water described?
   c. What kind of over-all picture of water do you have after listening to this music?

Essays from
Poems by Longfellow
1. The Brook
2. The River Charles

Record:
Smetana's "The Moldau"

Concept B

1. What are some of the ways you use water each day?
   a. Children will list orally while teacher makes listing on board.
2. Which of these are needs and which are wants?
3. Can you think of any other ways we use water?
   a. Water as a cleaning agent.
   b. Water used in industry.
      1. power source
      2. cooling, cleaning
   c. Water used in agriculture.
   d. Water used in recreation.
      1. swimming
      2. boating
      3. fishing
      4. skiing

Concept C

1. Use Record and filmstrip - "Water Pollution - A Complex Problem"
2. Have children fill out worksheet.

Filmstrip #122
"Water Pollution - A Complex Problem"
Record:
A 202-2RR
Worksheet

Materials

Day II.

I. Concepts
   A. Water is polluted and a major source of pollutant in the home is household cleaners.
   B. Water has been polluted by industries throughout the U.S. and this polluting affects many individuals.

II. Activities
Introduction - Discuss worksheet from previous day and discover how we most directly pollute water from household cleaners and home water use.

Concept A

1. Use tape "Understanding Water Pollution" and worksheets accompanying it.
2. Be certain to discuss current attitudes toward phosphates.
   a. Phosphates may not be as harmful as once considered.
   b. Low phosphate detergents have even caused death when eaten by small children.
   c. Results of new cleaners are not known.
3. Ask children to bring in small samples of detergents used in their home.

tape: "Understanding Water Pollution" and five worksheets including water pollution terms and poster.

Concept B

1. Pass out sheet listing specific instances of water pollution.
   a. Read and discuss each instance.
   b. Have children look up difficult words, diseases, etc.
2. Divide class for making bulletin board illustrating instances of polluting and illnesses, etc. resulting.
   a. Have several children make large map of U.S.
   b. Have pairs of children write details of each incident on large card with magic marker.
   c. Or have each team illustrate each incident.
   d. Attach a string to card or illustration and have the children pinpoint the locale of each incident. (Cards or illustrations are attached to side of map on bulletin board.

Sheet listing incidents of water pollution.

Transparency of outline map of the U.S.
Large cards -5x7
Magic markers

String
Thumb tacks or bulletin board Tacks
Manilla paper and crayons

Materials

Day III.

I. Concepts
   A. There are a vairety of detergents in use.
   B. These detergents vary in a number of ways.
   C. Different detergents have a different phosphate content.
   D. Chemicals in detergents affect acquatic life,

II. Activities

Concept A - List all detergents brought in.

Concept B - Test detergents for height of suds and length of time suds lasted.
1. Prepare equal sized test tubes - ½ full of water.
2. Make soap solution with 1 spoon of detergent to to 3 spoons of water.
3. Place 10 drops of soap solution in test tube.
4. Shake tube 10 times.
5. Record height of suds immediately after shaking and length of time suds lasted.
6. Repeat for each detergent - test liquid and powder separately.
7. Graph results.

test tubes

jar for mixing solution

eye dropper

graph paper

Concept C - Take phosphate chart and locate your detergent and check phosphate content.

Pollution Examining Your Environment p.68

Concept D - Set up experiment to illustrate.
1. Fill 3 jars with water.
   a. jar 1 is the control.
   b. plant in jar 2 and 3 elodea using gravel to hold plants in place.
   c. feed 1 teas. ammonium nitrate to jar and plant 2.
   d. feed 1 teas. potassium phosphate to jar and plant 3.
2. Examine each day to note change and record observations.
3. Add ½ teas. of each chemical after 3 or 4 days.

3 large jars

elodea

acquarium gravel

potassium phosphate

ammonium nitrate

table to place in the sunlight

Day IV.

I. Concepts
   A. Each of us can do something about water pollution.
   B. The amount of water on the earth does not vary.

Materials

II. Activities

Concept A

1. Plan detergent and pollution survey of your neighborhood.
   a. Children plan questions to be asked and design uniform chart to be used.
      1. house number
      2. brand of detergent used
      3. amount used
      4. awareness of phosphate
      5. Are you trying to stop pollution?
      6. If so, how?
2. Set up display to share with other classes or P.T.A. some of our findings.
   a. Kinds of pollution - sign "Look What We're Doing to Our Water".
      1. Jar of soapy water
      2. Jar of water with oil
      3. Jar with mud and litter.
   b. Display of detergent tests results.
3. Begin planning poster with slogan, etc. to be completed by end of 3 week periods.

Poster board for sign

paints or magic markers

3 large jars
detergents
oil
soil and litter
poster paper for survey results

Concept B - Show film "Water Cycle"

1. Discuss meaning of words:
   a. cycle
   b. evaporation
   c. condensation
2. Discuss and illustrate the water cycle in order to evaluate children's understanding of the vocabulary used and the "cycle" concept.
3. Children are to bring a coffee can and Alka-Seltzer bottle.

Film:
"Water Cycle"

manilla paper
crayons

Day V.

I. Concepts
   A. Many people are attempting to stop pollution but may not know how.
   B. Rain can be measured and falls in varying amounts.

II. Activities

Concept A - Share survey results.

1. Most people are concerned about phosphates and are confused about what threat they may be.
2. People list a variety of ways they are trying to stop pollution.

Materials

a. not littering
b. keeping their lawn neat
c. restricting or consolidating water use
d. organic gardening
e. writing letters to government officials
f. occupational involvement — Running water
g. supporting and joining organizations that are fighting pollution and are involved in conservation projects. — Examining Your Environment p. 24 and 25

Concept B - While some children are working on posters, supervise each child's making a rain guage. — Poster paper scissors

1. Mark a toothpick at ½ inch.
2. Fill can with water ½ inch full (use toothpick). — Art paper
3. Pour this amount of water into tall bottle. — Glue
4. Run masking tape vertically on outside of bottle. — toothpicks
5. Mark water level on bottle ½ inch and divide until 1/16 inch is marked. — masking tape ruler
6. Have children take home to measure rains during unit. (coffee can is set outdoors to catch rain) — coffee cans Alka-seltzer bottles

WEEK 2

Introduction

Review how to use rain gauge. Check results, if any. (Our rain measures varied from 1/16 to 1 and 3/4 inch during entire unit)

Day VI.

I. Concepts
   A. Man has learned to design buildings and roofs to promote good drainage.
   B. Where man has planned poorly or cut into areas for building, erosion or other accidents occur.

II. Activities
   A. Have the school janitor explain the school building design to handle rain and run-off. — Resource: Janitor
      1. Park Forest School has no spouting.
      2. Drain pipes under each cluster hall.
      3. Roof is designed to allow rain to run to a center drain and down to outside drains into woods - not into sewage as waste.

Materials

Concept B

1. Take a tour of the school area and allow children to observe erosion or examples of poor drainage.
2. Have children locate drains and other examples of good design on the school building.
3. Have Dr. Cox discuss with the children the experience of the hole developing in school grounds and possible causes.

Resource: Dr. Cox

Day VII.

I. Concepts
   A. Road surfaces are designed for good drainage.

Running Water
Examining Your Environment p.39

II. Activities
   Concept A
   1. Children will measure road level from curb to curb at intervals of 2 feet each and record results.
   2. Children will measure road level at 3 different sights and record results.
   3. One of the measures should be taken on an old road to compare it to a new road.
   4. After measuring is completed children will continue walking and locate catch basins.

Yardsticks
rulers
chalk
string
charts

Day VIII.

I. Concepts
   A. Roads are higher in center and slope off to each side.
   B. Catch basins are usually located on opposite sides of the road and downhill.
   C. Roofs are pitches or sloped by design for rain run-off.

II. Activities
   Concept A
   1. Children will share road measures.
   2. Children will express conclusions about findings.
   3. Children will share unusual findings and compare old and new roads.

   Concept B - Children will discuss findings concerning catch basins.

Materials

Concept C - Begin making roof slant measurements.
1. Nail handle to wood block.
2. Make circular protractor from cardboard - attach to side center.
3. Attach straw to top for sighting.
4. Attach string and weight.

Running Water - Examining Your Environment.-p.34
Wood:
10"x1"x3/4" small piece for handle
protractor
cardboard
nails
string
weight
thumbtack
plastic straw

Day IX.

I. Concepts
A. Roofs are pitches or sloped by design for rain run-off.

II. Activities
Concept A
1. Continue making roof slant measures.
2. Others continue posters.

Day X.

I. Concepts
A. Differences can be found in pitch and slope of house roofs.

Roof Slant measure

II. Activities

Concept A
1. Children will go out in the neighborhood and measure roof slants on houses.
2. Children will take three roof slope measurements at each house - record.
3. Children will try to locate older homes as well as new ones.
4. Children will look for car design and spouting arrangement for rain run-off.
5. Children will look for examples of erosion and poor drainage.

Chart for recording findings

WEEK 3

Day XI.

I. Concepts
A. Water samples can be compared by pH tests.
B. pH tests show acid or alkali content of a solution.

Baby food jars for water sampling

II. Activities
Concept A - Have children bring in samples from home, ponds, puddles, etc.
1. Run pH tests on each.
a. dip indicator paper in water
b. compare with color chart
2. Record results

Accutint indicator paper
Water samples

Materials

Concept B

1. Explain to children meaning of pH numbers.
2. Illustrate by letting test and record pH of:
   a. Milk — milk
   b. Soapy water — soap
   c. Vinegar — vinegar
   d. Polluted water (mine and dirty stream) — polluted water (mine)
3. Discuss meaning of high, low, and neutral pHs.

Set up bacteria tests in petrie dishes using polluted water. — Kit #6 "Can I Drink the Water" tape, petrie dishes, algar, medicine dropper, hot plate, water sample-polluted, closet

Day XII.

I. Concepts
   A. There are a variety of places where water is used in the school.
   B. An enormous amount of water is used daily.

II. Activities

Concept A

1. The children will list places where water is used.
2. The children will decide what need be counted for water use and drainage.
3. Children will organize and volunteer to survey entire school.
4. After survey is taken fountains, sinks, faucets, drains will be listed for each area.
5. Total will be determined.
6. Conclusions will be discussed.

Concept B

1. Children will locate water meter. — Locate water meter ahead of time
2. Children will record numbers on meter.
3. Children will contact Water Authority to ascertain meaning of reading and amount of water used daily in the school. — Telephone and number of Water Authority

Day XIII. - Review: check bacteria test and Understanding Water Pollution tape.

I. Concepts
   A. School sewage goes to plant and is treated.
   B. Sewage plants can remove some pollution.
   C. Effluent can be used but sludge resulting from sewage treatment plant can not.

II. Activities

Concept A

1. Review amount of water used daily and school survey results.
2. Share with the children route of sewage to plant.

Concept B

1. Process for treatment
   a. Screening
   b. Aereating
   c. Bacteria eating bacteria
   d. Filtering
   e. Chlorinating
2. Results 95-98% pure
   a. Goes into Spring Creek
   b. More chlorine would make the water purer but would kill the fish.

Concept C

1. Show film "Living Filter" and discuss.
2. Mention resultant sludge to children so that they may inquire about it at the Sewage Treatment Plant.

Film: "The Living Filter"

Day XIV - Fieldtrip to Township Sewage Treatment.

Day XV

I. Concepts
   A. Pollution of our waters can be checked and water restored.

II. Activities

Concept A

1. Play tape "Stopping Water Pollution"
2. Have the children discuss ways they can stop water pollution.

Tape: "Stopping Water Pollution"

Culmination

1. Review field trip and learnings.
2. Write thank-you note and have all children who wish sign it.
3. Share posters and slogans.
4. Through discussion list results and findings in this study.
5. Have children evaluate course, material, activities and how the course might be improved.

notepaper
envelope
stamp
address of plant

The field trip for this unit was to the Township Sewage Treatment Plant. The men at this plant were most courteous, patient, and communicative with the children. All of the threat of distaste on the part of the children was removed by the manner of the men who directed the tour. The men who conducted the tour were Mr. Weaver and Mr. Welsh. I highly recommend this tour.

Diane W. Oyler

Related Activities

Field and Forest (3 weeks)

I. Introduction

Since many of the students do not know the names of their classmates in this group, play a get acquainted game. Suggestion - "I went on a hike through a woods and took _____(name), _____(name), and _____(name), etc" The names of students should be added as more members of the class are introduced.

II. A forest and field are composed of more than just trees and grass.

A. Discuss with class the locations of forests they have visited. Locate these forests on either United States, Pennsylvania or Centre County maps.

maps - U.S.
Pa.
Centre Co.

B. Have the class imagine that they are taking a walk through a field or forest. Have them list the different things they would see. After completing activity, list on the board or on charts some of the individual answers. As this is being done, the students should begin to see the need for categories, i.e.

living - non-living

animals - plants

C. Read to the class "Trees Alone Do Not Make A Forest". Use transparencies with the story.

Sounds of Mystery
"Trees Alone Do Not Make a Forest"
Author: Bill Martin
Publisher: Holt, Rinehart and Winston

D. Make illustration of field and/or forest scene including at least 5 different kinds of things found in either or both habitats. Fold illustration to form booklet. Insert pocket to keep papers in.

oaktag

E. Keeping a diary - Each day the students will individually reflect upon what they have learned. These reflections are to be recorded in diary form at the end of each class period.

paper for diary

III. The forest is composed of several layers of plant and animal life.

A. Conduct a discussion comparing the layers of the forest with the stories of an apartment building.

1. The Soil Layer

a. With shovel scoop up soil in different locations. Examine the composition of the soil.	shovel
b. Examine soil to learn how soil is formed.	
c. Discuss ways in which weather, plants and animals assist in the process of decomposition. Look for examples of decomposition taking place.	
d. Using shovel or instrument for taking soil samples. Examine the layers of the soil. Try to distinguish the different kinds of soil.	shovel or instrument for taking a soil sample
e. Discuss the meaning of erosion. Look for examples of erosion. Look for ways in which erosion is being prevented.	
f. Experiment - Water Perculation Test	2 cans equal in size with tops and bottoms removed stop watch
g. Take walk through the forest observing the kinds of soil and where plants grow best.	
h. Experiment - Using 2 jars fill each with a different kind of soil. (i.e. sand, clay, or humus, etc.) Plant 2 seeds in each jar. Place jars in sunlight and water equally. Record daily observations.	2 jars bean seeds 2 different kinds of soil book for recording observations
i. Discussion - What has man done to make the soil more productive? less productive?	
j. Experiment - Using 2 jars, fill each with soil taken from the same location. Mix a small amount of fertilizer with one sample and place in jars. Plant two seeds in each jar. Water daily with equal amounts. Record observations.	2 jars fertilizer bean seeds book for recording observations

k. Discuss how fertilizers have influenced animal life. Assign several students to do research on the topic and report their findings to the class.

l. Examine soil in respect ot its inhabitants. After students have observed several specimens, have them select one to do research on. Each child is to become an expert on his specimen. When research is completed each student shall report to the group his findings. — hand lens

m. View slides — slides on soil conservation #55

2. The Shrub Layer

a. Have students select different areas in a field or forest for the purpose of making daily observations. The student shall record their observations of plant and animal life in the area. (I week)

b. View filmstrip — filmstrip "The Woods of Home"

c. View Filmstrip — filmstrip "Forests"

d. Take a walk in a woods. Try to identify the kinds of plant growth along the way.

e. View filmstrip — filmstrip"Forest Families"

f. Have each student select an animal which they would like to know more about. (The animal must live in a field or forest.) The student will then list 7-10 different things he learned from his research. After completing the research, the student will prepare a drawing of his animal.

g. Guest speaker — Mr. Ondyk from the Penn State Deer Pens

h. View Filmstrip — filmstrip "Grass-lands"

3. The Tree Layer

   a. On walk through the woods examine and try to identify the different kinds of trees.

   b. Examine the growth rings of a freshly cut log or stump.

   c. Observe and try to identify the different kinds of birds in the forest.

III. An interdependence exists between plants and animals.

A. Man depends upon plants to replenish his oxygen supply.

1. Discuss diagram of cycle — diagram of oxygen cycle

2. Discuss consequences of too much or too little vegetation.

B. Man is experimentally using the forest in wastewater treatment.

1. View film — film "The Living Filter"

2. Field trip to State College Wastewater Treatment Facility and to the Penn State effluent area.

Related Activities

Field and Forest

I. Introduction

Since many of the children do not know each other, it's a good idea to play a game which makes them familiar with each other's name. Ex. "I went on a field trip and with me I took _____, _____, _____, etc." (using the names of children in the class.)

II. The forest is divided into different layers.

A. The students will read "The Forest Community" and hold discussion about the comparison between the forest and floors of a hotel. — Pamphlet: "The Forest Community" (Audobon Nature Bulletin)

1. The Soil Layer

a. Take shovel of dirt and look for different layers.

b. Discuss what makes up the soil. Take a short walk and look for evidence of decomposition. — shovel

c. Gather several handfuls of soil from different areas. Put each in a jar, water and seal. Place in sunlight and observe what happens. — jars

d. Discuss erosion and its effects on the soil. Take walk to look for evidence of erosion. Discuss what is being done to prevent and control erosion.

2. The Forest Floor

a. Take one yard square of ground and look for all the different species, both plant and animal.

b. Have child choose one animal found in the forest or field and do research for a short report. A drawing of the animal should be included.

c. Show filmstrip and discuss the many different families that are found on the forest floor. — Filmstrip: "Forest Families"

d. Have children do pantomine of an animal found in the forest or field.

3. The tree Layer

a. Discuss how a tree grows and go over the diagram with whole class. — Chart: "How A Tree Grows"

b. Have children describe life cycle of a tree.

c. Discuss how the age of a tree is determined (by counting the rings) and give opportunity for children to determine age of several tree stumps.

d. Have children make a clue chart for trees.

e. Show filmstrip with short discussion afterwards. — Filmstrip" "Forests"

f. Take field trip to "Pa. Game Commission Nursery".

III. Relationship of Man To The Forests

A. The Forest's Beauty

1. Discuss beauty of the forest which is evident in all things.

a. Show filmstrip emphasizing the beauty of the forest. — Filmstrip: "The Woods of Home"

b. Read aloud two poems about trees; one poem showing the beauty of trees and one criticizing billboards for obstructing the beauty of trees. — Poems:"Trees" Joyce Kilner "I think that I shall never see..... Ogden Nash

c. Have children write a poem about nature, either along the same idea of Kilmer's or Nash's.

B. Forest Products

1. Read fact sheet about forests and discuss what man gets from the forest. — "Forestry Fact Sheet" - U.S. Dept. of Agriculture

2. Have children make a list of everything man gets from the forest.

3. Make bulletin board "What We Get From The Forest" shwoing various forest products made by the children.

C. Man's Effect On Forests

1. Discuss the good and bad effects man has had on nature.

2. Discuss photos showing the effect that man can have on his environment.

Pictures: 1A-1B from First Follow Nature Series

3. Paint murals -a) one showing what the forests will look like if pollution continues and b) one showing what the forest can look like if pollution stops.

tempra paint
large paper
brushes
newspaper to protect area

4. Dramatize a trial in which people who are guilty of poor conservation practices are tried. Have students give a sentence suitable to the crime.

5. Have students make up new conservation laws to be put into a conservation constitution.

RESOURCE LIST

*Note: All of the materials listed may be obtained from within our district or through the P.S.U. film library.

Ecology - Book Lists

Teachers

Pollution: A Handbook for Teachers, Dorothy Needhan
Pennsylvania Teaching Guide to Natural Resources - Conservation

Above Average
The City in the Wor[illegible]e Future, Hal Hellman
American Cities, [illegible]
People Use the Ea[illegible]rson, Coon, Dobler, Stoddard, Weaver
First Book of Con[illegible] Smith
Water at Work, Mey[illegible]
Rain, River and Rese[illegible]irs, Archer
Understanding Ecology, Billington
Conservation and You, Hitch
Rivers and Watersheds in America's Future, Helfman
Conservationists and What They Do, Harrison
Ecology, Life
This Crowded Planet, Waltrin
Story of Mankind, Van Loom
The Tough Winter, Lawson
Wildlife Sanctuaries, Harrison
Wild Deer, Colby
A Tree is Born, Sterling Nature Series
This is a Leaf, Hutchins
Science in Your Own Back Yard, Cooper
Children of the Ark, Gray
America's Endangered Wildlife, Lycock
As We Live and Breathe, National Geog. Soc.
Challenges in Our Changing Urban Society, Goldberg
Time is Short and the Water Rises, Walsh

Average
People Use the Earth, Anderson, Coon, Dobler, Stoddard, Weaver
You and New York City, Glogan, Krause, Rubenstein (T.Ed.)
Living in Chicago, Mauriel Stanek. (T.Ed.)
The Big City and How It Grew, Urell, Jennings, Weinberg
Investigating Man's World, Scott Foresman (Metropolitan Studies)
Harvesting the Sea, D. S. Fenton
What Then Raman? Shirley L. Arora
Life Story, Virginia Lee Burton
A Wild Goose Tale, Wilson Gage
Rabbit Hill, Robert Lawson
The First Book of Conservation, Smith
First Book of Trees, M.S.Cormack
State Trees, Earle
Our Friend the Forest, Patricia Lauber
Oil, Today's Black Magic, Walter Buehr
The New World of Plastics, Alfred Lewis
Dust Bowl, Patricia Lauber
Because of A Tree, Lares and Margery Milne

Below Average
Every Day is Earth Day, Podendorf
Big City, Hader
Saving Wild Life for Tomorrow, Russell
Wake Up, City, Duvoisin
We Live in the City, Ray
The Poppy Seeds, Bulla
Everyday Animals, Allen
The True Book of Trees, Podendorf

ECOLOGY UNIT

Filmstrips - Environmental Ed. Coordinator

Environmental Education Title III project - filmstrip and cassette
"The Beer Can by the Highway" - filmstrip dealing with litter along our highway
"Water Pollution: Salt Water" - filmstrip dealing with Salt Water pollution
"Water Pollution: Fresh Water" - filmstrip dealing with Fresh Water pollution

Park Forest Library
"The Roots of Our Urban Problems" FS 120 - with record
"The Air Pollution Menace" FS 121 - with record
"Water Pollution - A Complex Problem" FS 122 - with record
"Solid Waste - A New Pollutant" - FS 123 - with record
"The Transportation Crisis" FS 124 - with record
"The Housing Crisis" - FS 125 - with record

Central Office
"Man: An Endangered Species?" F-95 - tape
"Breaking the Biological Strand" F-96 tape
"Vanishing Species" F-97 - tape
"Preserve and Protect" F-98 - tape
"Population Explosion" F-99 - tape

Transparencies

Biology - Ecological Aspects #24

ECOLOGY UNIT - filmstrips, loops, slides, tapes, and movies (Media Office)

CITY

filmstrips

P-30 What's Under A City Street
E-86 Here is the City
E-91 Keeping the City Alive
L-54 Leisure in the City
E-88 Living in the City
L-51 Living in the Cities
H-95 Man, Builder of Cities
L-53 Schools in the City
E-90 Working in the City
U-57 A Construction Site
U-83 Interdependent People

movie

16MM-49 Clean Town (West Penn) - 20 minutes

loops

CSU-8-269 Transactions within the City
CSU-8-270 24 Hours in Times Square
CSU-8-267 Energy for the City
CSU-8-268 Taking Care of the City
CSU-8-182 City and County Contrasts

slides

2x2 -51 Ecology of the City
2x2 -32 New York City
2x2 -47 Problems of the Cities
2x2 -500 Urban Slum Problems

tapes

TR - 35 Travel in the City
TR - 36 Travel in the City

AIR POLLUTION

slides

2x2 -48 Air Pollution
2x2 -49 Visual Pollution

tapes

TR - 823 Understanding Air Pollution
TR - 827 Stopping Air Pollution

WATER POLLUTION

filmstrips

H-21 The Freshwater Community
C-80 Water and Its Conservation
N-61 The Great Lakes - Causes of Pollution
N-60 The Great Lakes - History of Ecology
T-95 Streams and Ponds
H-21 The Freshwater Community

movie

16MM-39 A Town That Washes Its Water (West Penn) - 20 minutes

loops

CSU-8-209 Under water life in Streams and Ponds
CSU-8-247 Surface and Sub-surface Streams
CSU-8-253 Water Cycle on Land
CSU-8-32 Fish and Wildlife Conservation

slides

2x2 - 53 Water Pollution
2x2 - 54 Water Conservation

tapes

TR - 820 Understanding Water Pollution
TR - 821 Food Chain
TR - 822 Stopping Water Pollution

ANIMALS

filmstrips

C-83 Conservation of Wildlife
H-43 Life Cycle of An Animal
H-37 The Vanishing Prairie - Prairie Dogs
F-97 Vanishing Species
N-69 Whales - Ecology
M-74 The Coral Reef
X-34 Desert Plants and Animals
U-29 How Plants and Animals Have Changed
T-9 Interdependence of Plants and Animals

slides

2x2 - 13 Zoo Animals
2x2 - 46 Conservation of Wildlife

tapes

TR - 405 Ecology Predator Prey

FIELD AND FORESTS

filmstrips

P-88 Forest Families
M-78 The Woods of Home
M-69 The Face of the Land
R-87 Forests
T-93 Grasslands
T-92 Grassland Forest Despoliation and Inbalance
T-89 Lowland Forest
T-88 Lowland Forest Despoliation and Inbalance
T-91 Marshes
T-90 Marshes Despoliation and Inbalance
U-64 A Grass Yard

slides

2x2 - 55 Soil Conservation
2x2 - 58 Forest Conservation

GENERAL ECOLOGY

filmstrips

S-63 Man Improves Plants and Animals
C-40 Arctic Tundra
F-96 Breaking Biological Strand
T-21 Conservation - Your Stage in the Future
U-28 How Living Things Are Adapted
U-68 It's Our Choice

slides

2x2 - 57 Conservation of Human Resources

tapes

TR - 832 The Population Problem

TR Teaching Tape with worksheets
CSU Loops and Projectors